TIME MANAGEMENT FACTORS IN CONSTRUCTION PROJECT DELIVERY IN GOMBE STATE, NIGERIA

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TIME MANAGEMENT FACTORS IN CONSTRUCTION PROJECT DELIVERY IN GOMBE STATE, NIGERIA

By

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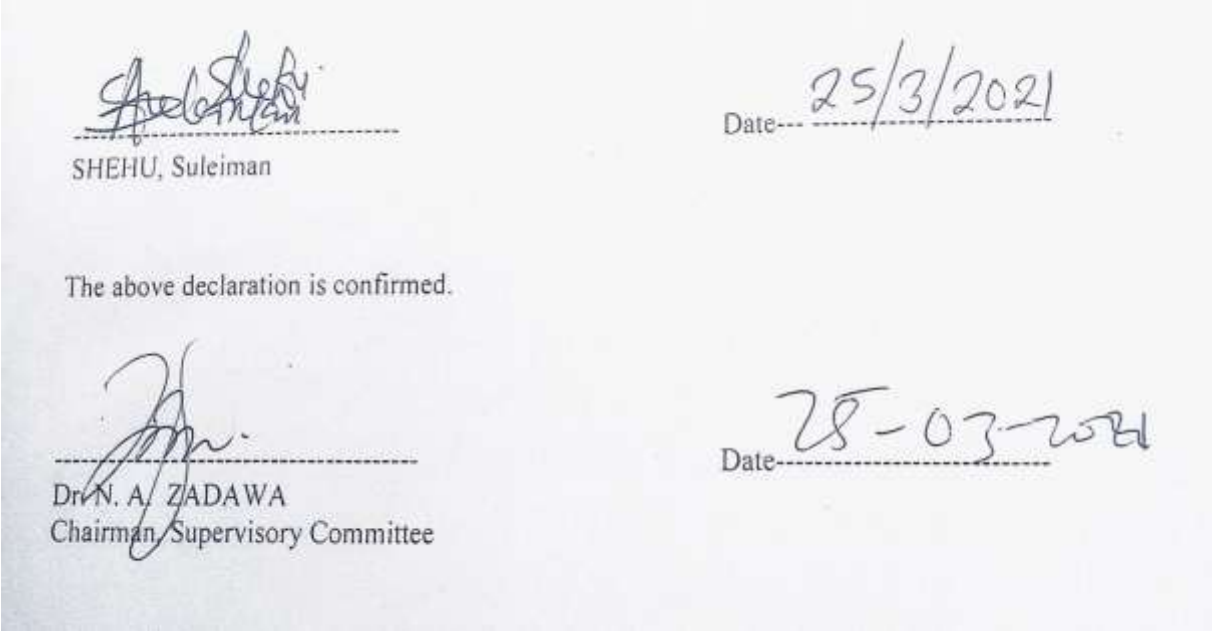
A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, ABUBAKAR TAFAWA BALEWA UNIVERSITY BAUCHI, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF TECHNOLOGY IN PROJECT MANAGEMENT

DEPARTMENT OF QUANTITY SURVEYING
FACULTY OF ENVIRONMENTAL TECHNOLOGY

MARCH, 2021

DECLARATION

I hereby declare that this thesis report was written by me and it is a record of my own research work. It has not been presented before in any previous application for a higher degree. References made to published literature have been duly acknowledged.



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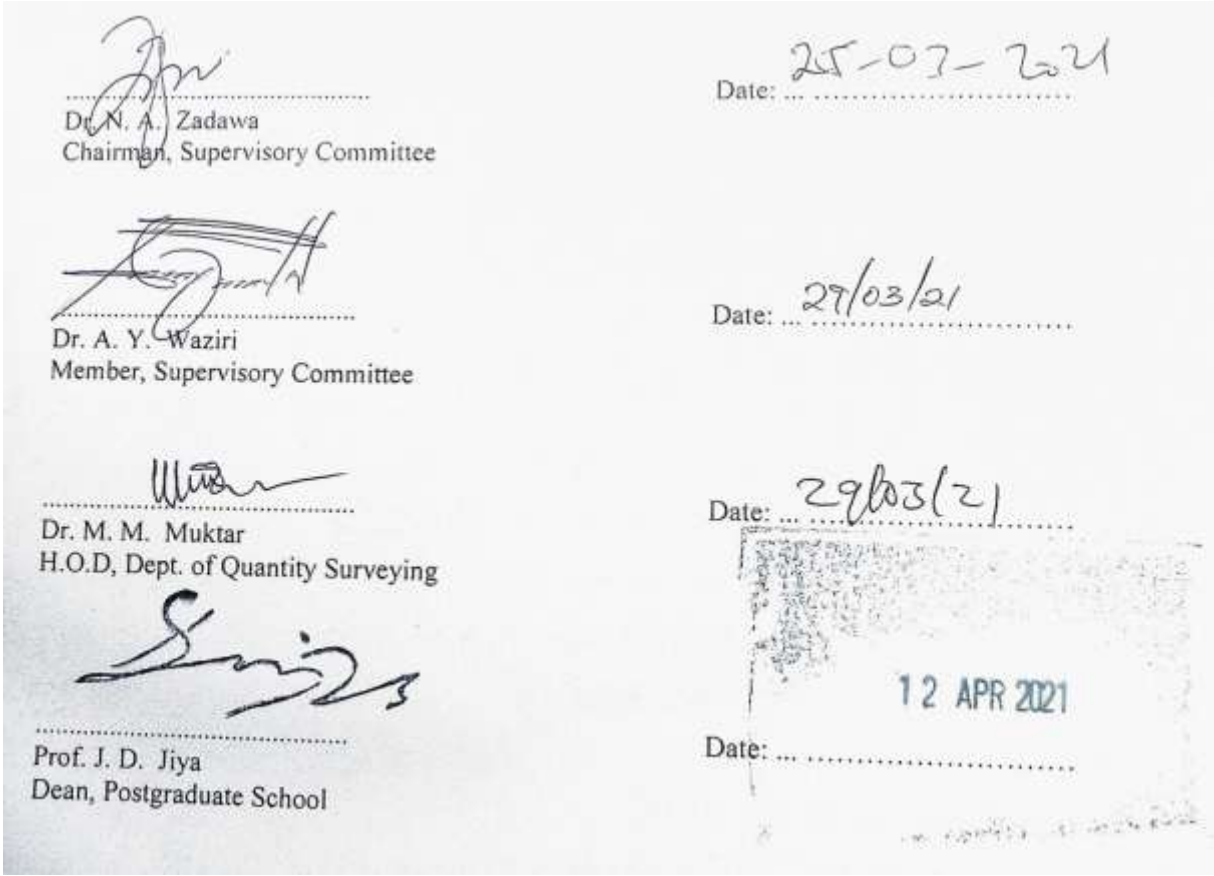
CERTIFICATION

This project thesis entitled "Time Management Factors in Construction Project Delivery in Gombe State, Nigeria" meets the regulations governing the award of the Degree of Master of Technology (M-Tech) of Abubakar Tafawa Balewa University, Bauchi, and is approved for its contribution to knowledge and literary presentation.



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DEDICATION

I dedicate this work to: Allah the lord of mankind, my parents: Mr Shehu Abukar and Mrs Aishatu Shehu Abukar, My late son Muhammad Suleiman Shehu and my entire siblings: Fatima Shehu, Munirat, Rakiya, Rabiu, Safiya and Shehu Hassan.

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ABSTRACT

The management of time is a necessity of life, and time is a major yardstick used to assess the performance of construction projects worldwide. The main issue that propelled this study is the existence of paucity of information on factors influencing time management and the consequence of none adherence is poor delivery of project especially completion within schedule. This study aimed is to evaluate time management factors in construction project delivery in Gombe state, Nigeria with a view to improving on efficiency of project delivery. The research design used for the study is quantitative design using both exploratory and descriptive survey approach. Stratified random sampling technique was used to administer 88 questionnaires to representatives of clients, contractors and to consultants. The questionnaire administration attained 70.45% response rate. Data were analyzed with statistical package for social science (SPSS) tool for Kendall's mean scores, Correlation, Regression and Descriptive statistics. The result revealed that 31-time management factors were identified and was agreed and accepted by 86.3% of the respondents. Findings also revealed that more than 70% of the respondents are willing to adhere with the principles and processes of time management identified. The highest ranked principles influencing time management are: effective communication and teamwork; effective planning; effective monitoring, controlling and evaluation. The highest ranked processes are: monitoring and controlling schedule; estimating resource requirement for activities. The highest ranked practices influencing time management are: employment of skillful and competent workforce; availability of materials; periodic monitoring and updating the progress of work; availability of effective supervision and management of staff; commitment and providing good leadership direction. Time management practices and timely completion of construction project was found to be moderately correlated ($r = 0.340$), ($P = 0.007$). It was also revealed that adherence to the practices influencing time management would lead to 31% increase in timely completion of construction project; adherence with the principles influencing time management would lead to 13.5% increase in timely completion of construction project, while adherence to the processes of time management was the least predictor influencing timely completion of construction project. In conclusion, practices of time management has a major influence on timely completion of construction project. Since time management is geared towards managing behaviours and activities there is need for more synergy, stakeholders should cooperate and employ all necessary practices that will ensure timely completion of construction projects.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

The construction industry worldwide is regarded as a potent motivator of national economy because it provides the driving force necessary for sustaining a buoyant economy or reviving a depressed one (Kadiri & Shittu, 2015).

Construction has been facing numerous issues and one of them is time management issues which have caused delayed completion of a project (Singh, Hamid & Yahya, 2007; Chin & Abdulhamid, 2015). Thus, the issues that can lead to delays are insidious often resulting in time overrun, cost overrun, disputes, litigation, and abandonment of projects (Chin & Abdulhamid, 2015). Also, it might lead to poor quality of work in an effort to beat time.

A research conducted by the Chartered Institute of Building (CIOB) in 2008 has indicated that the quality of time-management on construction projects is generally poor (CIOB, 2008; Chin & Abdulhamid, 2015). The research also indicates that the growth in training, education and skill levels within the industry in the use of time management techniques has not kept pace with the technology available. In addition, there are also very few projects currently managed by reference to modern methods of time control.

In Africa, the general view held by stakeholders in the construction industry and the public in general is that the industry especially within the public sector has not been efficient and effective in projects delivery (Kogi, 2013). In Nigeria for example in which Gombe state is an integral part, the industry produces nearly 70% of the nation's fixed capital formation and contributes between one and three percent (1-3%) to employment generation (Kadiri & Shittu, 2015). Yet, Nigerian construction industry has suffered many setbacks in terms of completion of the projects at stipulated period within the predetermined sum (Muhammed &

Isah, 2012), they further state that Majority of the construction project in Nigeria experience time and cost overrun which in turn lead to the abandonment of projects.

According to Project Management Institute [PMI] (2017) time is an integral part of life. However, many people and organizations do not actively manage it. Time, like life itself, can speed by, never being used in an organized effort to achieve some goal, or time can be managed to efficiently complete specific objectives. Time refers to indefinite and continued progress of existence and events that occur in apparently irreversible succession from the past through the present and, finally, lead towards the future (The American Heritage Dictionary of the English Language, 2011). Time can also be defined as a period either long or short, during which we does something or something happens, while management is defined as the act or skill of dealing with people or situations in a successful way (The Concise Oxford Dictionary, 2011). Time is an important component of quantity to measure the various events and their timing to compare the duration or the intervals to quantify the rates of change of quantities in reality and in the conscious experience (Sahito & Vaisanen, 2017).

According to North (2004) time management is the organization of tasks or events by first estimating how much time a task will take to be completed, when it must be completed, and then adjusting events that would interfere with its completion. Time management is a process of managing time according to the requirements of different assignments and activities with the goal of ensuring organizational success and maximizing benefits by utilizing, saving and not wasting time or energy (Sahito & Vaisanen, 2017), they further state that time management requires managing work schedules to achieve organizational goals through advanced planning, organization and implementation. Westland (2006) on his part, posited that time management is the process of recording and controlling time spent by staff on the project. Time management is a critical asset for both professionals and organizations, since it concerns the discovery and application of efficient methods to

complete assignments within a specified period and at the necessary quality level (Sahito & Vaisanen, 2017).

Project time management includes the processes required to accomplish timely completion of the project (PMI, 2013). Furthermore, project time management processes includes: activity definition, activity sequencing, activity resource estimating, and activity duration estimating (PMI, 2013; Hussain, 2014), schedule development and schedule control (PMI, 2013). Planning, Organization, Responsibility and accountability/integrity are identified as principles for effective time management (Adeyinka, 2012). In addition, Amiri, Ghobadian and Mirzaei (2014) have identified ten principles of time management which include setting datelines, prioritizing, evaluation and control. Ugwu and Attah (2016) have identified economic policy, management style, political consideration and motivation of workers as relevant in managing construction project.

This study adopts definition of time management by Adeyinka (2012) and Mgeleka (2015) as a set of principles, practices, skills, tools and system that helps one to use one's time to accomplish what one wants. Furthermore, construction project delivery in this study is limited to timely completion. To ensure improve construction project delivery, United Nation Development Programme in 2009 has identified four main areas for focus consistently to improve the chances of success which are: Planning and programme and project definition, Stakeholder involvement, Communication, Monitoring and evaluation (United Nation Development Programme [UNDP], 2009).

According to PMI (2017) lack of time management can and probably will result in failure of a project. PMI (2017) further state that, the better time is managed the more efficient a project will be, assuming all others processes remain the same. Even though, a lot of studies have been carried out in some aspects of cost and time worldwide and in the study area (Olawale & Sun, 2010; Inuwa, 2014; Abdulkadir, Muhammad, Gidado & Nuruddeen, 2017) they all agreed that stakeholders pay more attention to managing cost rather than time

and yet, issues due to inefficient project delivery still persist. Adherence to time management factors does aid orderliness and enables one or organization to be more productive and successful in project delivery to the satisfaction of all stakeholders. Therefore, this study find out time management factors, the level of adherence as well as their effect on construction project delivery in Nigeria.

Basically, as various studies has describe time as part of live, irrecoverable when lost, time cannot be accumulated like money, time cannot be turned on and off like machine and its management could be regarded as an indispensable chain as well as the most relevant among numerous process required to achieve successful project outcome. Hence, this study will seek to evaluate time management factors in construction project delivery in Gombe state, Nigeria with a view to improve on efficient project delivery.

1.2 Statement of the Problem

According to Nasir, MohdNawi and Radzuan (2016) time is regarded as most important parameter for project delivery. As such, failure to manage time properly in every phase of construction activities causes a lot of abandoned projects in construction industry (Nasir *et al.,* 2016). The word 'time' becomes a tool for planning, identifying and evaluating the level of achievement in construction projects (Rolstadas, Tommelein, Morten & Glenn, 2014). Also, PMI (2017) posited that the management of time is crucial to the successful completion of a project. PMI (2017) further stated that not only is the short term realization of success or failure of the project at stake but also the personal reputation of the project manager and the project team members. The better time is managed the more efficient a project will be, assuming all others processes remain the same (PMI, 2017). Effective time management is vitally important for construction project Chin and Abdulhamid (2015). Time management helps identify needs and wants in terms of their importance and matches them with time and other resources (Eruteyan, 2008). According to Adeyinka (2012) a better time

management can be achieved if goals have been set and then all future work is prioritized based on how it moves the individual or organization towards meeting the goals.

More than 70% of major clients are dissatisfied with contractors' performance in keeping to time, cost and quality (Hao, 2008). Studies have shown that failure in construction project can result to failure in timely completion, completions above budget, clients are not satisfied, failure in stated quality and specifications (Kogi, 2013). Some studies in Nigeria have shown evidence of failure in timely completion as well as hike in the cost or budget. For instance Inuwa (2014) in his studies has rated cost and time performance with cumulative average of 43.02%. Also, Abdulkadir *et al.* (2017) in their studies reported poor time performance rate of 21-40% of projects executed and poor cost performance rate 1-20%. Furthermore, they all agreed that stakeholders pay more attention to managing cost rather than time in their studies respectively.

Basically, a lot of research has been carried out in some aspect of time and its management as a parameter of which majority were together with other parameters like cost and quality etc. (Westland, 2006; CIOB, 2008; Sun and Olawale, 2010; Adeyinka, 2012; Muhammed and Isah, 2012; Kogi, 2013; Inuwa, 2014; Chin and Abdulhamid, 2015; Kadiri and Shittu 2015; Nasir *et al.,* 2016; Abdulkadir *et al.,* 2017). Most of the previous studies reviewed tend to dwell more on the causes of time overrun in project. Yet, issues due to inefficient project delivery still persist. More specifically, some studies have been carried out on the processes of project time management (PMI, 2013; Hussain, 2014), however none has deliberated on adherence to it during construction project and there seems to be paucity of information on the principles of time management relevant to construction project. Furthermore, none of the studies reviewed has discussed the applicable practices capable of influencing time management in construction project delivery in Nigeria.

Therefore in view of the above, this study focused more by identifying time management factors in construction project, assessing the level of adherence with the principles and processes influencing timely completion of construction project, identifying practices influencing timely completion of construction project and determining the effect of time management factors on timely completion of construction project with emphasis on economic, management and motivational policy with a view to improving on efficiency of project to the overall satisfaction of stakeholders.

1.3 Aim and Objectives of the Study

This study is aimed at evaluating time management factors in construction project delivery in Gombe State, Nigeria with a view to propose possible solutions towards time management for improving efficiency of construction project delivery and objectives set out to be achieved are:

i. To identify time management factors in construction project delivery in Gombe state, Nigeria.
ii. To examine the levels of adherence with the principles and processes of time management in construction project delivery in the study area.
iii. To assess practices influencing time management in construction project delivery in the study area.
iv. To determine the effect of time management factors in construction project delivery in the study area.

1.4 Research Questions

i. What are the time management factors in construction project delivery in Gombe state, Nigeria?
ii. What are the levels of adherence with the principles and processes of time management in construction project delivery in the study area?

iii. What are the practices influencing adherence to time management in construction project delivery in the study area?

iv. What are the effects of adherence to time management factors in construction project delivery in the study area?

1.5 Significance of the Study

It is hope that this study contributed valuable knowledge to the field of time management in general. It is so far one of the study that has focused more on adherence to time and its management in construction projects through proffering solutions that will minimize time-overrun. As such, it added knowledge to the existing literature on the subject area. It should therefore form a useful material to other researchers, construction firms, construction clients, construction professionals and the public in general.

This study suggested significant policy statements through its recommendations which will aid policy formulation.

The study should also influence adherence to time and its management in construction project delivery in Gombe Sate, Nigeria. In an attempt to deal with non-adherence to time and its associate problems on project delivery, stakeholders should focus on issues and suggestions raised such as principles, processes and practices that will ensure adherence to time management in construction project delivery. The use of such specific knowledge will improve efficiency of construction project delivery in Nigeria. As such, the outcome of this study will be disseminated through conferences, journal publications, seminars and as a written thesis in various libraries.

1.6 Scope of the Study

This study focused on adherence to time management factors in construction project delivery in Nigeria with a view to improve on efficiency of project outcome. The study was conducted

in Gombe State, Nigeria through administering questionnaires by the researcher and his assistants. The study area was chosen due to high concentration of construction activities especially in its tertiary institutions, also studies by Inuwa (2014) and Abdulkadir *et al.* (2017) have all reported delay in timely completion of project in Gombe State, this is also so all over Nigeria. As such, respondents of the study include building contractors, clients and consultants all represented by experienced and academically qualified construction professionals and personnel in areas such as: Architecture, Building, Engineering, Quantity Surveying, Project Management and others like Planning/Land Surveying/Estate Management, Accounting, Business and Management. The study area was delimited to Federal University of Kashere (FUK) and Federal College of Education Technical (FCE) Gombe all situated in Gombe State, Nigeria. The study specifically identified time management factors in construction project delivery; examined the level of adherence with the principles and processes of time management in construction project delivery; identified practices influencing adherence to time management in construction project delivery and determined the effect of adherence to time management factors in construction project delivery in Gombe state, Nigeria.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 The Concept of Construction Project Management

Basically, the management of construction is so unique that it involves so many processes and the contribution of so many stakeholders ranging from the client, contractors and consultants all playing a crucial role in the project initiation, planning, execution, monitoring, controlling, and closing the work to achieve specific goals, which include timely completion, completion within budget, completion to specification and quality, and to the overall satisfaction of stakeholders among other project performance delivery. There are two main standards for project management i.e. Project Management Body of Knowledge (PMBOK) by PMI, USA and PRINCE-2 by APMG, UK. PMBOK is more dominant standard as this is used in more than 75% of the projects around the world (Singh & Lano, 2014). The main characteristic of Projects is that they are defined by their scope, budget, and schedule Federal Transit Administration [FTA] (2012). Project management emerged because of the growing demand for complex, sophisticated, customized goods and services, and the exponential expansion of human knowledge (Bokouros & Kelessidis, 2000).

According to PMI (2013) a project is a temporary endeavour undertaken to produce a unique product, service or result with a defined beginning and end undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. According to (Singh & Lano, 2014), PRINCE-2 defines a project as, “A management environment that is created for the purpose of delivering one or more business products according to a specified business case”. The Scottish Qualification Authority on their part have defined project as a set of coordinated activities, with clear starting and finishing points, undertaken to meet objectives within defined time, cost and performance targets Scottish Qualification Authority [SQA] (2007). In addition, Kerzner (2009) has elaborated more on the definition of a project

as a sequence of activities and tasks that have certain objectives with a certain specification, defined start and finish dates, financial limitations, requires human and non-human resources and in cloud various functions.

Basically, different authors have done justice by well defining what is meant by project management concept. The PMI in 2013, defines project management as the application of knowledge, skills, tools and techniques to project activities to achieve project requirements, and is accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring and controlling, and closing (PMI, 2013). Furthermore, Project management is the planning, monitoring and control of all aspects of the project, and the motivation of all those involved in it to achieve the objectives on time and to the specified cost, quality and performance (SQA, 2007).

2.1.1 Construction project management process

The project management process begins with identification of the user requirement, project constraints, resource needs, and establishment of realistic objectives to meet the strategic goals (FTA, 2012). Hence, Project Management Processes: are set of interrelated actions and activities performed to achieve a pre-specified product, system, result, or service. Each process is characterized by its inputs, the tools, and techniques that can be applied, and the resulting outputs (PMI, 2013). Furthermore, Project management processes are grouped into five categories: initiating, planning, executing, monitoring and controlling, and closing group.

a. **Initiating:** Processes performed to define a new project or phase of an existing project by obtaining approval to start the project or phase and its management from start to finish.
b. **Planning:** Processes performed to establish the scope, schedule, and budget of the effort; define and refine the objectives; and develop the course of action required to attain those objectives.

c. **Executing:** Processes performed to complete the work defined in the Project Management Plan to satisfy the project objectives. It involves people and resources
d. **Monitoring and Controlling:** Processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
e. **Closing:** Processes performed to finalize all activities across all process groups. It also, formalizes acceptance of the product, service, or result; brings the project or a project phase to an orderly end; and transitions to operations or to the next project phase.

Basically, these processes of project initiation, planning, execution, monitoring and control, and project closure are used throughout the life cycle of a project.

2.1.2 Construction project management knowledge areas

The Project Management Institute developed a Project Management Body of Knowledge (PMBOK) which forms basis for good practices and provides the requisite knowledge and techniques for better, efficient and effective project management. The PMBOK divide project management functions in to ten knowledge areas: Integration, Scope, Time, Quality, Human Resource, Communications, Risk Management, Procurement, Project Stakeholder Management (PMI, 2013). Also, the construction extension adds four areas (safety, environmental, financial and claim management) particular to the construction industry (King, 2017). As such, fourteen knowledge areas are used for effective and efficient construction project delivery as shown in Table 1.

Table 1: The fourteen Construction Project Management Knowledge Areas

1) **Project Integration Management**
   - Develop Project Charter
   - Develop Preliminary Project Scope Statement
   - Develop Project Management Plan
   - Direct and Manage Project Execution
   - Monitor and Control Project Work
   - Integrated Change Control
   - Close Project

2) **Project Scope Management**
   - Scope Planning
   - Scope Definition
   - Create WBS
   - Scope Verification
   - Scope Control

3) **Project Time Management**
   - Plan schedule management
   - Activity Definition
   - Activity Sequencing.
   - Activity Resource Estimating
   - Activity Duration Estimating
   - Schedule Development
   - Schedule Control

4) **Project Cost Management**
   - Cost Estimating
   - Cost Budgeting
   - Cost Control

5) **Project Quality Management**
   - Quality Planning
   - Perform Quality Assurance
   - Perform Quality Control

6) **Project Human Resource Management**
   - Human Resource Planning
   - Acquire Project Team
   - Develop Project Team
   - Manage Project Team

7) **Project Communications Management**
   - Communications Planning
   - Information Distribution
   - Performance Reporting
   - Manage Stakeholders

8) **Project Risk Management**
   - Risk Management Planning
   - Risk identification
   - Qualitative Risk Analysis
   - Quantitative Risk Analysis
   - Risk Response Planning ,
   - Risk Monitoring and Control

9) **Project Procurement Management**
   - Plan and Purchase Acquisitions
   - Plan Contracting
   - Request Seller, Responses
   - Select Sellers
   - Contract Administration
   - Contract Closeout

10) **Project stakeholders management**
   - Stakeholders identification
   - Planning
   - Manage engagement
   - Control engagement

11) **Project Safety Management**
   - Safety Planning
   - Safety Plan Execution
   - Administration and Reporting

12) **Project Environmental Management**
   - Environmental Planning
   - Environmental Assurance
   - Environmental Control

13) **Project Financial Management**
   - Financial Planning
   - Financial Control
   - Administration and Records

14) **Project Claim Management**
   - Claim Identification
   - Claim Quantification
   - Claim Prevention
   - Claim Resolution

Source: Adapted (king, 2017)

Finally, it can be said that Project management enables construction stakeholders to execute projects effectively and efficiently. Also, the level of project management effort depends on project size, type, and other complexities which are diverse with each project.

2.2 Project Time Management Concept

According to PMI (2013) time is an integral part of life. However, many people and organizations do not actively manage it. Chan and Kumaraswamy (2002) stated that construction time is increasingly important because it often serves as a crucial benchmarking for assessing the performance of a project and the efficiency of the project organization. Westland (2006), posited that time management is the process of recording and controlling time spent by staff on the project. Time management is a process of managing time according to the requirements of different assignments and activities with the goal of ensuring organizational success and maximizing benefits by utilizing, saving and not wasting time or energy (Sahito & Vaisanen, 2017). They further state that time management requires managing work schedules to achieve organizational goals through advanced planning, organization and implementation.

2.3 Time Management Factors in Construction Project

Basically, the factors influencing timely completion of construction project are not well documented i.e. there is paucity of information per se, but various researchers in the field of construction project and management have said a lot in such a way that it could be applicable to time management. As such, the factors could be grouped in to three (3) namely: influencing principles, influencing processes and influencing practices of time management.

2.3.1 Principles of time management

Basically, there are no well documented principles solely applicable to construction project time management and there is paucity of information. Though, several researchers in the field of project and management have reported some applicable principles in their studies, in which if adhere to will ensure success in delivery of construction project as depicted in Table 2.

Table 2: Principles influencing Time Management

Factors	Sources
-Planning	Sahito and Vaisanen (2017), Amiri *et al.*(2014), Memo *et al.* (2012), Eshaghieh and Eslami(2015), Chin and Abdulhamid (2015), Khamaksorn (2016), Ayodeji *et al.* (2017), Bahadori *et al.* (2015), Yakubu and Edna (2015),
-Identification of purpose (setting goals)	Amade *et al.* (2015), Murithi *et al.*(2017), Sahito and Vaisanen(2017), Amiri *et al.* (2014), Eshaghieh and Eslami (2015), Bahadori *et al.* (2015), Odumeru (2013)
-Prioritization of activities	Odumeru (2013), Amiri *et al.* (2014), Eshaghieh and Eslami (2015), Bahadori *et al.* (2015), Sahito and Vaisanen (2017), Yakubu and Edna (2015)
-Delegation of responsibilities	Sahito and Vaisanen (2017), Eshaghieh and Eslami (2015), Tracy (2013), Khamaksorn (2016), Bahadori *et al.* (2015), Olmstead (2010).
-Scheduling of activities	Sahito and Vaisanen (2017), Amiri *et al.* (2014), Chapman and Rupured (2008) (2012), Eshaghieh and Eslami (2015), Khamaksorn (2016), Yakubu and Edna (2015), Sunke (2009), Passaheim (2009)
-Accountability, integrity and responsibility	Inuwa (2014), Sahito and Vaisanen (2017), Adeyinka (2012), Acharya *et al.* (2004), Bivins (2006), Ssonko (2010), Ondrova (2016)
-Minimizing time wasters (Phone calls, emails, chatting etc.)	Sahito and Vaisanen (2017), Eshaghieh and Eslami (2015)
-Monitoring, control and evaluation	Inuwa (2014),UNDP (2009), Amiri *et al.* (2014), Sahito and Vaisanen (2017), Ayodeji *et al.* (2017), Murithi *et al.* (2017), Passenheim (2009), Memon *et al.* (2012), Ofori (2013), Amade *et al.* (2015).
-Communication and teamwork	Lohiya (2010), UNDP (2009), Ayodeji *et al.* (2017), Bahadori *et al.* (2015), Salas *et al.* (2014), Acharya *et al.* (2004), Ofori (2013), Amade *et al.* (2015), Ofori (2013), Adjei (2009), Inuwa (2014)
-Involvement of Stakeholders	Kobusingye *et al.* (2017), Bizon-Gorecka and Gorecki (2017), Amade *et al.* (2015), Olander and Landin (2015)

Source: Organized by researcher

i. Effective planning

Planning can be defined as the process of setting goals, developing strategies, outlining the implementation arrangements and allocating resources to achieve those goals (UNDP, 2009). Also, Planning consists of identification of the intention of the project management group with respect to the methods and procedures they intend to follow towards the management of the project's time function (PMI, 2017). In other words, it includes a statement depicting what the project management group intends to do, how it will be done, and what will be used to do it. Planning could be classified in to short range (Daily and Weekly), Medium range (Monthly and Quarterly), and long range (Yearly, like 1-10years) planning forecast.

According to UNDP (2009) the key processes involved in planning are:

a. Identifying the vision, goals or objectives to be achieved
b. Formulating the strategies needed to achieve the vision and goals
c. Determining and allocating the resources (financial and among others) required in achieving the vision and goals.
d. Outlining implementation arrangements, which include the arrangements for monitoring and evaluating progress towards achieving the vision and goals.

Benefits of effective planning to achieve timely completion of project: - There are four main benefits that make planning worthwhile (UNDP, 2009) which are:

a) Planning enable us to know what should be done when: without proper planning, projects or programmes may be implemented at the wrong time or in the wrong manner and result in poor outcomes.
b) Planning helps mitigate and manage crises and ensure smoother implementation: There will always be unexpected situations in programmes and projects. However, a proper planning exercise helps reduce the likelihood of these and prepares the team for dealing with them when they occur. The planning process should also involve

assessing risks and assumptions and thinking through possible unintended consequences of the activities being planned.

c) Planning improves focus on priorities and leads to more efficient use of time, money and other resources: Having a clear plan or roadmap helps focus limited resources on priority activities, that is, the ones most likely to bring about the desired change.

d) Planning helps determine what success will look like: A proper plan helps individuals and units to know whether the results achieved are those that planned and to assess any discrepancies.

ii. Identification of Purpose (setting goals)

Goal setting involves the development of a clear action plan designed to motivates and guide a person or organization towards what they set to achieve. A goal is a statement of an end result achieved in a specified period of time at a specific level of quality (Anonymous, 2014).

According to Bahadori *et al.* (2015) if the goals and objectives are set wrongly, this creates problems in the other steps and makes it difficult for managers to achieve successful time management. Before setting goals there is need to clarify the followings: Mission statement, Vision statement, Fiscal year priorities, Strategies, Monthly monitoring and managing meetings (Anonymous, 2014). A good goal must satisfy the rule of SMART (Specific, Measurable, Achievable, Relevant, Time bound).

Benefits of setting goals to achieve timely completion of project: - According to (Anonymous, 2014)

a. Provides long-term vision and short-term motivation
b. Helps us to organize our time and resources effectively
c. Measures our achievement so we can take pride in our accomplishments
d. Helps recognize our ability and competence to do what we set out to do
e. Improve or develop our skill, talent, or ability as well as realize important outcome

f. Helps to improve performance on a task or activity set out to be achieved.

iii. Effective Prioritization of Activities

According to Chapman and Rupured (2008) managing your time effectively requires a distinction between what is important and what is urgent. One of the easiest ways to prioritize is to make a "to do" list, which may be daily, weekly or monthly. McGraw (2003), has used the "ABC System" method of prioritization, he summarize, the lettered tasks as follows: (i) A tasks: Critical and time-sensitive (ii) B tasks: Important, but slightly less time-sensitive than A Tasks (iii) C tasks: Not time-sensitive-yet (iv) D tasks: Optional-nice, but neither important nor time-sensitive. Other methods are the 20/80% rule i.e. Pareto principle. The real meaning of the Pareto principle which says that 20% of your activities will account for 80% of the value of your activities. This means in essence that if you have a list of ten items to accomplish, two of these items will be worth more than the other eight items altogether Adeyinka (2012), Mgeleka (2015). Project prioritization is simply the art and science of arranging and starting schedule activities in order of importance to the project budget and completion time. The more effective a project are prioritized the better, because not everything can be done within scarce available time but is worthwhile to identify and finished the most important activities crucial to the project performance.

iv. Effective Delegation of Responsibilities and Activities

Delegation is when you assign responsibility to another person to carry out a specific task, and is one of the most important management techniques. Delegation is defined as: Giving a subordinate the Responsibility, Authority, and Accountability, to complete a task Jeanne M. Holm Center [JMHC] (2016).

Processes of delegating responsibilities: - Basically, select the people to delegate to, based on their positive attitude, antecedents, and demonstrated willingness to challenge and contribute, people who already deliver what's expected of them in terms of timeliness and

quality and go beyond what's expected. According to JMHC (2016) delegation could involve the following four (4) basic steps:

a. Define the Task - Define it to whom? Well, first you have to define it to yourself: Is this something i need to delegate? Is this something i can do? What's the outcome i want? Who would be the best person to do this task? etc.
b. Assign the Task - After you've decided that the task needs to be delegated, then it's time to select whom you want to take the job, explain to them the purpose of the job and its goals, obtain commitment from the subordinate and then finally encourage questions.
c. Grant Authority - Make sure you've cleared the way for them to complete the task. Give them the right amount of authority based on the job and level of training.
d. Follow-Up - Give positive and timely feedback. Don't leave it until the task is complete, follow-up with your subordinates on a regular basis.

Effective delegation if done worthwhile is capable of saving time, resources, develops people through learning, and motivates project team to work towards timely completion of construction project.

v. Daily/Weekly Scheduling of Activities

According to PMI (2017) scheduling is, in essence, the recognition of realistic time and resource restraints which will, in some way, influence the execution of the plan. Ssempebwa (2013) state that the project schedule is the tool that communicates what work needs to be performed, which resources of the organization will perform the work and the timeframes in which that work needs to be performed.

Basically, Scheduling is used to allocate plant, equipment, machinery, labour, materials and other production resources etc. and scheduling is a planning tool mostly using Gantt chart,

CPM, PERT etc. which are further made easy by using PM software. According to Anonymous (2012) the steps involved in activity schedule preparation are:

a. List the main activities and assign to results
b. Break the main activities down into sub-activities and manageable tasks
c. Clarify the sequence and dependencies of the activities and tasks
d. Estimate the start-up, duration and completion of each activity and task
e. Identify process indicators or milestones by which you can measure project performance
f. Define the expertise required to undertake the activities and tasks
g. Allocate tasks among the project team

Essentially, schedules can usually be carry out for both short periods, such as a daily or weekly schedule, and long-term planning such as monthly, quarterly and annually, again they are often made using a calendar, where the scheduler i.e. person making the schedule can note the dates and times at which various task or activities are planned to occur.

vi. Ensure Accountability, Integrity and Responsibility

Accountability is the readiness or preparedness to give an explanation or justification to stakeholders for one's judgments, intentions, acts and omissions when appropriately called upon to do so (Bivins, 2006), he further state that, accountability applies only to individuals, and is both a personal promise and obligation to oneself and to others, to deliver specific, defined results. Being accountable within an organization means you agree to be operationally defined as the sole agent for an outcome, regardless of the often-inadequate level of authority or control that you have been formally assigned by the organization.

According to Ssonko (2010) the concept of integrity has to do with perceived consistency of actions, values, methods, measures, principles, expectations and outcome. Webster's New World Dictionary of the American Language describes responsibility as a condition, quality,

fact, or instance of being responsible, having an obligation and reliability, possessing a skill to be able to distinguish between right and wrong, to think and act rationally Ondrova (2016). Unfortunately, unaccountable people are always passing the bucks i.e. they are always into excuses, blaming others, putting things off, doing the minimum, acting confused, and playing helpless Bivins (2006). Basically, in any organizations, unaccountability if not checked could be a basis or a poser to effective and efficient delivery of projects within schedule and other performance criteria.

vii. Effective Minimization and Managing Time Wasters

Time wasters are set of activities or habit which directly affects effective utilization of time to accomplished scheduled, prioritized task or program of work. Basically, time wasters are not limited to the followings: phone calls, emails, social media chatting, physical stops, unexpected visitors, repetitive tasks, unplanned meetings and unnecessary communication among others which are external wasters. While, on the other hand, procrastination, failure to delegate and set priorities and plan, poor scheduling, incompetence, unclear objectives etc. all could constitute internal time wasters.

How to curtailed time wasters: - Bridge (2014) on his part provide some solutions that will help mitigate the effect of time wasters which are: self-discipline and scheduling and setting boundaries, setting priorities and sticking with them. In general, by been accountable and responsible, self-discipline and well-focused among others will go a long way to minimized time wasters during construction with the multiple effect of timely and cost efficiently delivering project on schedule.

viii. Effective Monitoring, Controlling and Evaluation of Project Work

Monitoring and controlling project work is the process of tracking, reviewing, and reporting the overall progress to meet the performance objectives defined in the project management plan (PMI, 2013). Monitoring can be defined as the ongoing process by which stakeholders

obtain regular feedback on the progress being made towards achieving their goals and objectives and Evaluation is a rigorous and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to decision making. Evaluations, like monitoring, can apply to many things, including an activity, project, and programme (UNDP, 2009), they further state that, the key distinction between monitoring and evaluation is that evaluations are done independently to provide managers and staff with an objective assessment of whether or not they are on track. The key benefits of this process are that it allows stakeholders to understand the current state of the project, to recognize the actions taken to address any performance issues, and to have visibility into the future project status with cost and schedule forecasts and this process is performed throughout the project (PMI, 2013).

ix. Effective Communication and Teamwork

According to PMI (2013) effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or have an influence upon the project execution or outcome. According to Constructing Excellence (2004), Teams are groups of people with complementary skills who are committed to a common purpose and hold themselves mutually accountable for its achievement.

Elements of effective teamwork: Constructing Excellence (2004) outline the element of effective teamwork as: (a) Team identity (b) Shared vision and team objectives (c) Communication (d) Collaboration and participation (e) Issue negotiation and resolution (f) Reflection and self-assessment.

Benefits of effective communication and teamwork: According to constructing Excellence (2004) the benefits of successful teams includes:

a. Improvements in participants' confidence, attitudes, motivation and personal satisfaction
b. Greater clarity in expressing ideas through group discussion
c. Better understanding by individuals of the nature of their contribution and of the needs of other team members and more efficient use of resources, especially time
d. Greater optimism by focusing on positive outcomes and putting less weight on problems
e. A wider range of ideas rather than individuals working in isolation
f. More effective responses to changes by improved trust and communication help a team to adapt to new circumstances.

Poor communication can impact safety, production, quality, cost, schedule, and all other aspects of a job. Thus, it is important to work to continuously improve communication skills, both oral and written (Round & Segner, 2011). Teamwork generates friendship among workmates outside working hours. It enables workmates to share ideas and find solutions to problems encountered on a task assigned should it reoccurred Adjei (2009).

x. Effective Involvement of Stakeholders

According to PMI (2013) a stakeholder is an individual, group, or organization who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project and also, Stakeholders may be actively involved in the project or have interests that may be positively or negatively affected by the performance or completion of the project. Stakeholder Involvement is critical to the success of every project in every organization (Kobusingye *et al.* 2017). Project stakeholders include all members of the project team as well as all interested entities that are internal or external to the organization PMI (2013). In a construction project, stakeholders' perception is crucial and if negative and thus dissatisfied, can severely obstruct its implementation resulting in cost overruns and exceeding time

schedules due to conflicts and controversies (Olander & Landin, 2015). Basically, the project manager should manage the influences of these various stakeholders in relation to the project requirements to ensure a successful outcome PMI (2013).

2.3.2 Processes of time management

Project time Management includes the processes required to manage the timely completion of the project (PMI, 2013). The project management institute has done a great deal in clarifying the processes required in project time management. According to (PMI, 2013), there are seven (7) project time management processes as shown in Table 3, which also include the necessary inputs, tools and techniques, and outputs. The processes if implemented and adhere to, will lead to effective and efficient construction project delivery.

Table 3: Processes influencing Time Management

Factors	Activities Involve
1. Plan Schedule Management	The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
2. Define Activities	The process of identifying and documenting the specific actions to be performed to produce the project deliverables.
3. Sequence Activities	The process of identifying and documenting relationships among the project activities.
4. Estimate Activity Resources	The process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity.
5. Estimate Activity Durations	The process of estimating the number of work periods needed to complete individual activities with the estimated resources.
6. Develop Schedule	The process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model for project execution and monitoring and controlling.
7. Control Schedule	The process of monitoring the status of the project to update the project schedule and manage changes to the schedule baseline.

Source: Adapted Passenheim (2009), (PMI, 2013), Hussain (2014)

2.3.3 Practices of time management

According to Sahito and Vaisanen (2017) to make good use of time, time must be managed through a variety of relevant practices to settle down the necessary matters. Basically, there are no well documented practices solely applicable to ensure timely completion of construction. Though, several researchers in the field of project and management have reported some applicable practices which include economic policy, management and motivation consideration as in (Ugwu & Attah, 2016) as relevant for effective and efficient construction project delivery in their studies, in which if adhere to will ensure successful timely completion of project as shown in Table 4.

Table 4: Practices influencing Time Management

Factors	Sources
Economic policy consideration	
-Availability of Plants, Equipment and Machineries	▪ Razali and Manaf (2007), Enshassi *et al.* (2009), Ugwu and Attah (2016), Adjei (2009), Inuwa (2014), Wanbui *et al.* (2015).
-Availability of materials	▪ Enshassi *et al.* (2009), Ugwu and Attah (2016), Solanke and Fapohunda (2016), Inuwa (2014), Acharya *et al.* (2014), Patel and Vyas (2011), Sarowar *et al.* (2018), Ogundipe *et al.*(2018), Balwin and Bordoli (2014)
-Availability of supervision	▪ Adjei (2009), Ugwu and Attah (2016), Alwi *et al.* (2001), Andi (2014), Ogundipe *et al.* (2018).
Management policy consideration	
-commitment and providing specific direction	▪ Memon *et al.* (2012), Ugwu and Attah (2016), Adjei (2009), Amade *et al.* (2015), ofori (2013), Odusami *et al.* (2003), Burke and Barron (2007), Toor and Ofori (2008), Archer *et al.* (2010), Bhangale and Devalkar (2013)
-Setting timeline and project dateline	▪ Amiri *et al.* (2014), Ugwu and Attah (2016)
-Setting specific goals for people to achieve	▪ Adjei (2009), Ugwu and Attah (2016), Ofori (2013)
-Monitoring and updates on the progress of work	▪ Bennet (2003), Olawale and Sun (2010), Ugwu and Attah (2016), Memon *et al.* (2012), Amade *et al.* (2015), Jack *et al.* (2016), Murithi *et al.* (2017), Adebayo *et al.* (2018)
-Involving team members	▪ Ugwu and Attah (2016), Ibrahim *et al.* (2011)
-Employment of skillful workers	▪ Bustani (2000), Othman (2012), Memon *et al.* (2012), Darren *et al.* (2012), Inuwa (2014), Acharya *et al.* (2014) and Bilau *et al.* (2015), Bello (2017)
Motivational policy consideration	
-Job security	▪ Adjei (2009), Ugwu and Attah (2016)
-A sense of belonging and identification with the project team	▪ Othman (2012), Ugwu and Attah (2016), Enshassi *et al.* (2009), Andi (2004), Adjei (2009)
-opportunity for extending skills and experience through continuous learning and challenging task	▪ Enshassi *et al.* (2009), Ugwu and Attah (2016), Adjei (2009), Andi (2004)
-Recognition of contribution	▪ Acharya *et al.* (2014), Ugwu and Attah (2016), Othman (2012), Eshaghieh and Eslami(2015), Andi (2004)
-Exercise of power	▪ Acharya *et al.* (2014), Ugwu and Attah (2016), Eshaghieh and Eslami(2015)

Source: Organized by researcher

2.3.3.1 Economic Policy Consideration

Generally, productivity can be affected if required materials, tools, or construction equipment for the specific task or schedule activity are not available at the correct location and time. Poor supervision will also adversely affects timely delivery of construction projects.

a) **By ensuring availability of plants, equipment and machineries**: Wambui, Ombui and Kagiri (2015) mentioned that project equipment is a necessity and should influence performance by saving cost; also he added that project equipment enhances increased production. The impact of effectively managing plant and machinery used in construction sites are more significant in influencing the completion time of each projects (Manaf & Razali, 2017). The main determinants of the right equipment to be hired or purchase are: the method of doing the work, time to complete the task and the cost of construction.

b) **By ensuring availability of materials**: Construction materials are a collection of materials utilized at any stage or phase of construction (Solanke & Fapohunda, 2016). Thus, Materials management is the system for planning and controlling all of the efforts necessary to ensure that the correct quality and quantity of materials are properly specified in a timely manner, are obtained at a reasonable cost and most importantly are availed at the point of use when required Patel and Vyas (2011). For reduced construction cost, increased productivity, quality and timely project delivery, effective materials management must be of top priority to the project manager (Donyavi & Flanagan, 2009).

c) **By ensuring availability of effective supervision and management of staff:** According to JMHC (2016) supervision means literally, the "overseeing" (not the "overlooking") of people within a work unit, with the purpose of achieving maximum productivity through them. (Children's Workforce Development Council [CWDC] and Skills for Care [SFC], 2007), state that supervision is an accountable process which supports, assures and develops the knowledge, skills and values of an individual, group or team, and the purpose

is to improve the quality of their work to achieve agreed objectives and outcomes. JMHC (2016) a bad supervisory relationship is usually marked by a breakdown of communication between the supervisor and subordinates, resulting in frustration, confusion, and lower productivity. Good supervision has an obvious direct impact on productivity, as such effective supervision must enable and support workers to build effective professional relationships, develop good practice, and exercise both professional judgement and discretion in decision-making. JMHC (2016), states the general rules for effective supervision to include: (a) Get involved (b) Open channels of communication (c) Give your people a chance to develop (d) Establish standards and stick to them (e) Provide feedback. Andi (2004) on his part posited that, since the construction workers are not totally skillful, there is the need to establish proper management technique in order to keep the workers productive.it is essentially important to note that, Management and supervision are perceived by the worker as either competent, informed and concerned, or not. This perception, if positive, influences behaviour favourably and pays dividends through improved productivity with the attendant timely delivery of projects.

2.3.3.2 Management Policy Consideration

Generally, management is concerned with the formal relations among organization's departments, tasks and processes, and the promotion of greater efficiency and productivity among workers. Management policy is crucial for any project to succeed because it is the guiding principle for planning, organizing, leading, coordinating, controlling and staffing.

i. **By ensuring commitment and providing good leadership direction for people**: The commitment of all stakeholders involve in a project is crucial to its timely completion. Ghazinejad *et al.* (2018) defined commitment as the strength of an individual's identification with and involvement in an organization. It has three components: a strong belief in and acceptance of the organizational goals and values, a willingness to

exert considerable effort on behalf of the organization, and a desire to maintain organizational membership. Hussein (2013) identified a combination of top management commitment and project team commitment as a force driving the successful development of projects. Leadership is the art of influencing others to their maximum performance to accomplish any task, objective or project. According to Archer, Verster and Zulch (2010) leadership is a complex process by which a person influences others to accomplish a mission, task, or objective and directs the organization in a way that makes it more cohesive and coherent. They further state that the important qualities for a good leader are: (1) Communication (2) People skills and decision making skills (3) Self-discipline (4) Influence, integrity and reputation (5) Attitude (6) Self-belief (7) Personality

ii. **By Setting timeline and project deadline**: timeline are used to depict or visualize schedules for construction projects. Timelines break down the work that needs to be done over various stages of the project life cycle, and are useful to gauge progress at a glance. According to Stepanov (2017) the key elements of a timeline are: Tasks that are to be accomplished in a project; Dates of tasks; Duration of tasks; Dependencies between tasks. Construction timelines that include Gantt charts are most popular and they offer a clear snapshot of current versus expected work completed at important dates or milestones of the project, or at a specific phase, it can also show material and other resource requirement. In the words of Ugwu and Attah (2016) construction managers need to define the number of tasks to be performed within a specific time, the lack of specification of timelines for the performance of activities may have an adverse effect on the success of projects. Deadlines are dates set aside on or before which an activity or a schedule task must be completed. Amiri *et al.* (2014) on their part posited that setting deadlines are important factors in daily planning in

determining the time of its completion in order to increase the effectiveness of every activity.

iii. **By setting specific goals for people to achieve**: According to Ugwu and Attah (2016) construction project consist of activities and these activities need to be specified to workers and supervisors through information given by the management team for monthly, weekly and daily task execution completion of the project. The importance of clarity of project mission, purpose and goals, is not only crucial to the stakeholders but also every one shall be held responsible and accountable either for the work he performed or failed to deliver his portion of project.

iv. **By conducting periodic monitoring, control and updating the progress of work done**: During project operations, it is essential that actual performance be compared with planned performance in all of these areas and action taken to remedy any indicated deficiencies, this responsibility is termed *monitoring and control*, where *monitoring* refers to methods for comparing actual with planned performance and *control* denotes the actions taken to attempt to bring deficient aspects of the project into conformance Bennet (2003). The network-based project schedule provides a convenient means for periodic monitoring and Control, in this process each activity is examined to determine its status, as of the updating date. Periodically, the project teams will compare schedule progress with that shown on the project programme of work. The aim is to determine whether the various activities that were planned to be achieved during the previous period were actually achieved, the extent of their progress and the anticipated project completion date based on progress to date. Another purpose of the update is to incorporate any new information about already planned activities, to add information about any new work not previously planned and to determine their impacts on other activities and on the overall project completion date.

v. **By ensuring team integration**: Integration includes characteristics of unification, consolidation, communication, and integrative actions that are crucial to controlled project execution through completion, successfully managing stakeholder expectations, and meeting requirements (PMI,2013). Integration also has been known as a means of improving the project delivery team performance and hence influences project performance Ibrahim, Costello and Wilkinson (2011). True "integration" in construction projects implies mobilization of collaborative efforts from project team members and continuity of their harmonious relationships to eliminate any friction between them during project execution to ensure value for money and improved project delivery. Team integration is essential for successful project delivery (Ibrahim *et al.*, 2011), they further state that practice indicators for successful team integration in construction projects are: (a) focusing on goals and objectives (b) Seamless operation with no organizational defined boundaries (c) trust and respect (d) communication (e) Sharing information (f) Integrated ICT systems.

vi. **By employment of skillful and competent workforce**: According to Othman *et al.* (2012) by assigning more skilled workers, the project's performance and workflow will undoubtedly increase by a large margin. Darren, Mark and Christopher (2012) posited that a skill is associated with a particular task, a person who does not possess such a skill is unlikely to be able to carry out such task or will be less productive than somebody who does possess this skill. They added that skills are often associated with a qualification and its acquisition through formal and informal training and on-the-job experience.

2.3.3.3 Motivational Policy Consideration

Generally, motivational policy is mainly concerned with determining internal or external factors capable of influencing individual or organizational behaviour aimed at improving their

overall productivity to achieve timely delivery of project. According to Andi (2004) theories of work motivation can be categorized into three, i.e. content theories, process theories and contemporary theories, and Most researches on work motivation concerning the construction workers to date used the content theories and the most prominently used ones are Maslow's hierarchy of needs and Herzberg theories of motivation. Others are McClelland achievement theory.

a) **By ensuring job security for workers**: In essence, the possibility of a sustain source of earning an income is crucial to the workers state of mind, stability, patriotism, improve productivity and continue striving towards achievement of the organizational goal, this is so because their future is certain. As such, it will propel them to deliver their task on time.

b) **By ensuring a sense of belonging and identification with the project team**: According to Ugwu and Attah (2016) the word belonging means to be part of the project issues while identification with the project team comes from recognizing every efforts and contributions. Basically, a worker that is made to understand he/she belongs to a team will not look farther elsewhere to belongingness rather he/she does all in his/her own ability to ensure the objectives of the team are achieved. The sense of belonging to a team helps us feel: valued, needed, and accepted by others; safer; that our beliefs are valid; that our efforts and contribution are worthwhile; and comforted by being with others who share our interests and believes.

c) **By Provide opportunity for extending skills & experience through continuous learning and challenging task**: According to Adjei (2009) workers feel motivated when they are provided with opportunity to use their own initiative to undertake challenging tasks. He further state that, when workers are given the opportunity to undertake challenging tasks and take responsibility for any decisions made, this

motivates them due to the trust management have in them. Challenging task if done worthwhile by the workers will go a long way to ensure job security. Also giving opportunity for continuous learning on the task is a crucial motivating factor.

d) **By ensuring adequate recognition of workers contribution**: In general, the possibility of gaining a reward enhances performance in many different activities. Recognition of contribution is the process of getting goodies as a consequence of behaviour, such as a pay raise or promotion provided as a reward for positive behaviour with the intention of increasing the probability that the desired behaviour will be repeated Adjei (2009). The practice of recognizing workers effort and contribution by a simple gesture including award, leave, paying bonuses and over time is a crucial practice to increase performance toward timely delivery of a project.

e) **By exercising power (punishment of defaulting workers/team members):** Though, the power of punishment may implied terrible images, it can actually serve a very useful purpose. Punishment (threats, docking pay, and suspension) is an attempt to decrease the likelihood of a behavior recurring by applying negative consequences Adjei (2009). In today's context of complex, global organizations, many employees are frustrated by lack of accountability at all levels, as such when team members fail to live up to expectations, a good dose of corrective (but kind) feedback can work wonders , not only to get the job done. Communicate and enforce your standards, but be sure to provide support along the way. Also, be explicit about consequences for behavior or results that don't meet expectations and follow though consistently. The practice of punishing defaulting workers and team members if done effectively will serve as a deterrent to others and could be crucial to timely completion of project.

2.4 Construction Project Delivery

Construction deliverables are the ultimate aim of any project, and they formed the yardsticks upon which the success or failure of a project output are appraised by stakeholders in the construction sector. There seems to be a consensus amongst construction management researchers that construction project performance is estimated by time, cost and quality indices (Egwunatum, 2017). More than 70% of major clients are dissatisfied with contractors' performance in keeping to time, cost and quality (Hao *et al.*, 2008). In addition, Inuwa (2014) in his studies of project planning in construction procurement in Nigeria has rate cost and time performance with cumulative average of 43.02%. Abdulkadir *et al.* (2017) in their studies of cost and time overrun of building projects in Nigeria, also reported poor time performance rate of 21-40% of projects executed and poor cost performance rate 1-20% respectively.

According to Murithi *et al.* (2017) timely project completion is the projected completion time as in the contract for the construction of the project. Chan and Kumaraswamy (2002) stated that timely completion of construction projects within anticipated cost and to the level of quality standards settled by the owner is an index of successful project delivery. Lekan *et al.* (2017) in their studies of cost and time performance information of building projects in developing economy (West Africa) reported that 92% of the respondents have experienced between 1 to 24 months of time extension. According to PMI (2017) the management of time is crucial to the successful completion of a project. Basically, apart from timely completion within schedule and cost baseline, stated quality and specifications. Project scope, stakeholders satisfaction, among others are crucial indices upon which construction project can be delivered in terms of performance.

2.5 Conceptual Framework of the Study

Figure 1 presents the conceptual framework generated for the study. As shown, the figure has two major components. The Independent Variable "IV" Time management factors: Principles,

Processes, Practices and Dependent Variable "DV" Construction project delivery: Timely completion. The frame work postulates that the IV i.e. "adhering to time management factors" will ensure effective and efficient project operation which will directly affects the DV i.e. timely completion of construction project. However, this relationship is not immune to external factors which may affect its smooth operation.

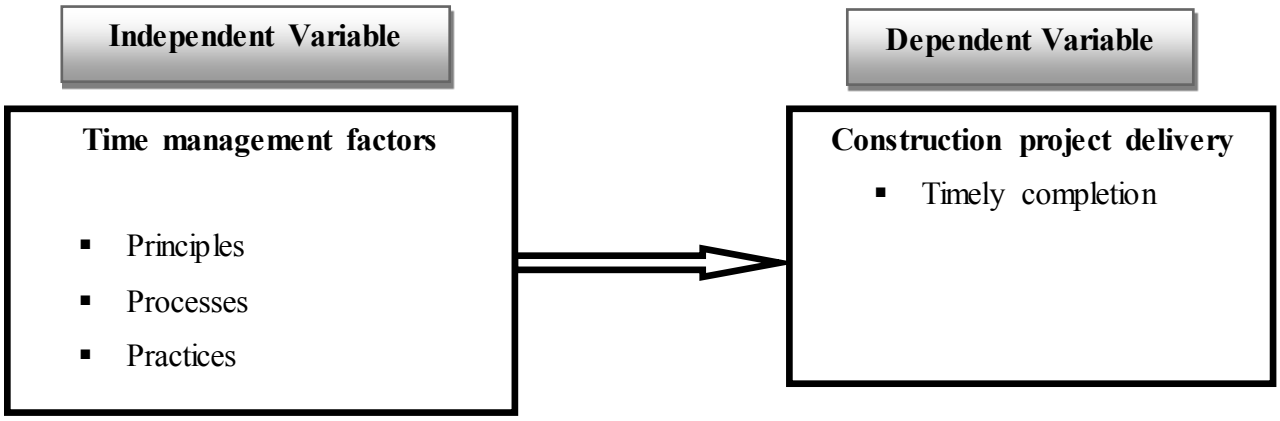

Figure 1: Conceptual Relation between Independent and Dependent Variables
Source: Organized by researcher

2.6 Theoretical Framework of the Study

Time management is not actually managing time per se, but how one manages his own behaviour in relation to time. As such this study was guided by the theories of management and behaviour.

2.6.1 The management theories

According to Kwok (2014) management theories were concerned with the formal relations among organization's departments, tasks and processes, and the promotion of greater efficiency and productivity among workers. These theories which include Bureaucratic, administrative and scientific management all emerged around the same period around the late 1890s to early 1990s. This study adopts the administrative and scientific management theories as against the bureaucratic which is a rigid approach to management.

i. Administrative Management Theory

According to Kwok (2014) administrative management is more concerned with how an organization is run and the distinction of basic managerial functions. Henri Fayol (1841-1925), a French industrialist, was the first person to group management functions that today are summarized as planning, organizing, leading, coordinating, controlling and staffing. He identified fourteen management principles that included: (i) division of labour (specialization leads to greater efficiency); (ii) authority (managers have the authority to get things done); (iii) discipline (members of the organization need to respect the rules and regulations that govern it); (iv) unity of command (avoid conflicting and/or confusing instructions); (v) unity of direction (only one manager should be responsible for an employee's behaviour; (vi) subordination of individual interest to the common good (the interests of individual employees should not take precedence over the interests of the entire organization); (vii) remuneration (pay for work done should be fair to both the employee and the employer); (viii) centralization (managers should retain the final responsibility); (ix)scalar chair (a single uninterrupted line of authority should run rank to rank from top management to the lowest level position in the company); (x) order (materials and people need to be in the right place at the right time); (xi) equity (managers should be both friendly and fair to their subordinates); (xii) stability and tenure of staff (stability and tenure should be enhanced and high staff turnover should be avoided); (xiii) initiative (subordinates should be given the freedom to formulate and carry out their own plans; (xiv) esprit de corps (promoting team spirit).

ii. Scientific Management Theory

According to Kwok (2014) the scientific management theory focused primarily on production, management, organization, technology and science and is probably the most well-known among the traditional theories, and comprises of four basic objectives, as follows: (i) The development of a science for each element of a man's work to replace the old rule-of thumb methods (ii) The scientific selection, training and development of workers instead of

allowing them to choose their own tasks and train themselves as best they could (iii) The development of a spirit of hearty cooperation between workers and management to ensure that work could be carried out in accordance with scientifically devised procedures and (iv) The division of work between workers and the management in almost equal shares, each group taking over the work for which it is best fitted instead of the former condition in which responsibility largely rested with the workers. Frederick Winslow Taylor (1856-1915) is considered to be one of the most influential persons in terms of impact on management service practice as well as on management thought up to the present day. In his 1909 publication, "Principles of Scientific Management", Taylor spearheaded the scientific management movement, a management approach that emphasized improving work methods through observation and analysis. He also popularized using financial incentives-financial rewards paid to workers whose production exceeds some predetermined standard. His framework for a successful organization included: (i) clear delineation of authority (ii) responsibility (iii) separation of planning from operations (iv) incentive schemes for workers (v) management by exception and (vi) task specialization.

Another popular contributor to the scientific management theory is Henry Gantt (1861-1919) who worked for Taylor and is to be remembered for his humanizing influence on management, emphasizing the conditions that have favourable psychological effects on the worker. Gantt was also credited for establishing the quota systems and bonuses for workers who exceeded their quotas. In addition, he was also remembered for creating the Gantt chart – a visual plan and progress report that identifies various stages of work which must be carried out to complete a project, sets deadlines for each stage, and documents accomplishments. It is used for scheduling of jobs which is based on time, rather than quantity, volume or weight. Furthermore, Kwok identified other more well-known scientific management theorists which included Frank Gilbreths (1868-1924), Lillian Gilbreths (1878-1972) and Charles Bedaux (1887-1944).

2.6.2 The behavioural theories

According to Kwok (2014) the behavioural theories which emerged in 1920's stress the importance of group dynamics, complex human motivations and the manager's leadership style. As long ago as the 1920s there was opposition to the scientific principles as discretion was removed from individuals as a way of centralizing control and authority into specialized functions. The focus of attention had been almost exclusively on the jobs which individuals performed and how they could be improved. Benefits went disproportionately to the company and the individual's work experience was dehumanizing as they were treated as extensions to the machines. It also emphasizes the employee's social and economic needs and the influence of the organization's social setting on the quantity and quality of work produced, and its focuses on two competencies – communication and teamwork.

According to Kwok (2014) one of the most prominent behavioural theorists is Elton Mayo (1880–1949) Some of his major findings included: (i) workers thought and acted not as individuals but as a group; (ii) workers should sacrifice their self-interest in the face of group pressure; (iii) money is not the sole motivator; (iv) supervisors have significant influence on output; (v) the social world of the adult is patterned around work activity; (vi) the need for recognition, security and sense of belonging is more important in determining workers' morale and productivity than the physical conditions under which he works; (vii) a complaint is not necessarily an objective recital of facts; it is commonly a symptom manifesting disturbance of an individual's status position; (viii) the worker is a person whose attitudes and effectiveness are conditioned by social demands from both inside and outside the work plant; (ix) informal groups within the work plant exercise strong social controls over the work habits and attitudes of the individual worker; and (x) group collaboration does not occur by accident; it must be planned and developed. He therefore made five recommendations which are: (i) managers must not ignore the informal organization but ensure that its norms are in harmony with organizational goals (ii) man is basically motivated by social needs, not economic ones

(iii) work is rationalized by employees and meanings are sought in social relationships at work (iv) managers must focus on the work group rather than individuals, but workers should be considered in a personal context in order to understand each employee's unique needs and sources satisfaction; and (v) effective supervisors are those who satisfy subordinate's social needs. Furthermore, Kwok identified other more well-known behavioral theorist to include Mary Parker Follett (1868-1933), Chester Barnard (1886-1961), Abraham Maslow (1908-1970), Douglas McGregor (1906-1964), Rensis Likert (1903-1981), Frederick Herzberg (1923-2000), and David McClelland (1917-1998).

As adapted for this study, both the management and behavioural theories has stressed the importance of adhering with principles, processes and practices that will ensure effective and efficient project operation with resulting successful project delivery. The management and behavioural theories are in consonance with Ugwu and Attah (2016) they identified economic policy, political consideration, management style and motivation of workers as relevant in construction management. Also, Mgeleka (2015) has used the Pickle Jar, Pareto principle and Parkinson's Law in his study of the impact of time management on work performance in Tanzania. Obijiaku (2015) also use Maslow's and Alderfer's ERG theory in his study of the effect of time management. Both Mgeleka and Obijiaku used theories which stem from management and behaviour in their studies of time. Furthermore, time management which is among the various components of project management e.g. Risk, cost, quality all stem from planning, coordinating, organizing, controlling people and activities (Behavioural and Managerial) all geared towards successful outcome. As such, to ensure successful construction project there is need for a holistic approach in terms of managing ourselves towards time (Behavioural) and managing construction activities (Administratively and scientifically) as well as adhering to same in terms of their principles, processes and practices.

2.7 Research Gap of the Study

This study is solution oriented towards time overrun; it was necessitated due to paucity of information on the factors capable of influencing adherence to time management in construction project delivery. Virtually most of the previous studies reviewed tend to dwell more on the causes of time overrun in project. Yet, issues due to inefficient project delivery like timely completion still persist. More specifically, some studies have been carried out on the processes of project time management (PMI, 2013; Hussain, 2014), however none of the studies reviewed has deliberated on their level of adherence and ranked in order of importance during construction project; there seems to be paucity of information on the principles of time management relevant to construction project and none of the previous studies reviewed has deliberated on their level of adherence and ranked in order of importance. Furthermore, none of the studies reviewed has identified applicable practices capable of influencing time management in construction project delivery in Nigeria.

Therefore in view of the above, this study bridged the gap by: identifying time management factors in construction project delivery, examined the level of adherence with the principles and processes of time management in construction project delivery in the study area, assessed practices influencing time management in construction project delivery in the study area and the study also determined the effect of time management factors on construction project delivery with emphasis on timely completion with a view to improving on efficiency on timely completion of construction project to the overall satisfaction of stakeholders.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Research Design

According to Oso and Onen (2011) before choosing a design, a researcher should consider the purpose, objectives, hypotheses/ questions of the study. The main purpose of this study is to evaluate time management adherence factors in construction project delivery in Gombe state, Nigeria with a view to improving on efficient project delivery. The study objectives are to: identify time management adherence factors in construction project; examine the levels of adherence with the principles and processes of time management in construction project delivery; to identify practices influencing adherence to time management in construction project delivery and determine the effect of adherence with the principles, processes and practices time management in construction project delivery.

The study was conducted through survey design, this is a design which presents oriented methodology used to investigate populations by selecting samples to analyze and discover occurrences (Oso & Onen, 2011). Literature was also reviewed to understand the construct of the research problem and objectives.

According to McNabb (2009) questionnaire survey is the most appropriate tool used in capturing large amount of data from people's experience. Basically, survey design is suitable for both qualitative and quantitative research approach in getting data. Furthermore, questionnaire in which the design used as one of its tools was employed to get data for research objectives No. 2, 3 and 4 of the study. As such, this study adopted a quantitative design using descriptive and exploratory design approach.

3.2 Study Area

The study was conducted in Gombe state, Nigeria. The state is located in the North-Eastern part of the Country; it has a population of approximately 2.53 Million people (National Bureau of Statistics, 2006). The area has high concentration of construction activities (Inuwa, 2014) and the area has so many developing tertiary institutions, the state is a construction site being one of the fastest developing states in Nigeria. Furthermore, the study will be domicile in Federal University of Kashere (FUK), Federal College of Education Technical (FCE-T Gombe) all in Gombe state, Nigeria.

3.3 Population of the Study

Respondents of the study includes building contractors, clients and consultants all represented by experienced and academically qualified construction professionals and personnel in areas such as: Architecture, Building, Engineering, Quantity Surveying, Project Management and others like Planning/Land Surveying/Estate Management, Accounting, Business and Management. The study area was Federal University of Kashere (FUK) and Federal College of Education Technical (FCE-T Gombe) all situated in Gombe state, Also included as respondents are relevant construction consultants and contractors domicile in the study area and who may have at one time being involved in the planning and supervision of building construction project. A total of 112 respondents, which was the record of experienced and academically qualified personnel, registered contractors and consultants obtained from FUK, FCE-T during pilot survey in 2018 was used for the study.

3.4 Sample Size and Sampling Technique

According to Kothari (2009) sample size is the number of items to be selected from the universe to constitute a sample but, the size of the sample to be drawn can be influenced by the size of the population and other parameters such as education, the nature of the research

and the economic factor. As such this study used Krejcie and Morgan 1970 table for determining sample size. Hence, the study involved 88 participants as a sample population size of the respondents within the study area.

Also Kothari (2009) further states that sampling techniques are the instruments used in selecting the sample size. This study therefore used stratified random sampling. Kothari (2009), states that stratified sampling is the method that involves dividing the population into different groups or classes and, these classes or categories are called strata and the sample is drawn from each stratum (Mgeleka, 2015). The most appropriate sampling technique to use when a population share common features is stratified random sampling (Oso & Onen, 2011). Hence, this method was used in order to get the right number without bias when selecting the respondents using FUK and FCE as strata.

3.5 Data Collection Method

This study adopted quantitative design approach with questionnaire as the main instrument for data collection as detailed in sub-section 3.5.1. Also, extensive review of literature was carried out from various sources.

3.5.1 Questionnaire design

Basically, upon thorough review of existing materials, the research questionnaire was designed aimed at gathering information from the study respondents in order to answer the study questions and other questions relevant to the general objectives and it captures virtually all the relevant data that were acknowledged during the literature review and experts opinion during the study pilot survey in 2018.

The research questionnaire apart from the cover letter, it has three main sections tag A, B and C. **Section A;** consists of closed-ended categorical questions about respondents' demographic information, such as: Area of specialization, Highest academic qualification

obtained, Years of working experience, Nature of project operation involve and Category of working organization (Questions 1-5).

Section B; consist of question (6-8) and it sort to seek for respondents opinion relevant to the general aim of the study, and all the questions are closed-ended type such as: what is your professional opinion on this statement "stakeholders pays more attention and resources to managing cost as compare to time during construction project delivery, rating with a 6-point agreement/disagreement index likert scale ranking, from 1-completely disagree to 6-Completely agree. The remaining questions in this section are about length of time extension experience in a project.

Section C; basically seek to answer questions pertaining to the specific objectives of the study i.e. questions (9-13). A 6-point likert ranking scale with 1-Never adhere to 6-Very frequently adhere, as well as 1-completely disagree to 6-completely agree was used to rate the respondents level of adherence or willingness to adhere with list of principles and processes influencing timely completion of project; the respondents were asked to identify from the list of practices influencing time management adherence, using a 6-point likert scale from 1-Completely disagree to 6- Completely agree; and the effect of adherence with the principles, processes and practices of time management in construction project delivery using a 6-point rating scale of 1-completely low to 6-completely high.

3.5.2 Pre-testing of questionnaire

Pre-testing is the surest means for a questionnaire to be comprehensible and error free (Buys, 2004 cited in Inuwa, 2014). As such, this research used a convenience sample of 4 people to conduct a pilot survey on the respondents to pre-test the questionnaires. Among the respondents' were two academic staff who major in Architecture, Quantity surveying as well as management in the construction industry respectively; they comprised of Senior Lecturers all PhD holders, the remaining two experts are professionals with vast experience who had at

some times been engaged by the clients, contractors or consultants. All the experts have more than 10 years of working experience in the industry.

Questions were posed to the four respondents about the questionnaires in order to elicit responses. These responses were acted upon to ensure comprehensibility, an error-free questionnaire, adjustment was done were necessary.

3.5.3 Questionnaire survey validity and reliability test

The validity of data collection tools will be assured by accommodating comments from the research supervisor and other experts. An internal consistency test was conducted on the questionnaire using Cronbach alpha coefficient; it is a reliability test, to test the replicability of the questionnaire and the level of random error (Inuwa, 2014). While a content validity test will be conducted to ascertain whether the questionnaire will be able to obtain data in which the questionnaire is intended to obtain (Oso & Onen, 2011).

3.5.3.1 Questionnaire Reliability Test

The use of Cronbach's α, allows negative construct to be detected and positive to be accepted ranging from a scale of 0 to 1.0 (Ogwueleka, 2011 cited in Inuwa, 2014). The minimum acceptable value for Cronbach's alpha is from 0.5 to 0.6 Olatunji (2010) cited in Inuwa (2014). He further state that, < 0.5 indicates Poor reliability; 0.5-0.7 Sufficient and > 0.7 Good reliability.

As such, in view of the above, Cronbach's α scale is used to measure the study questionnaire construct consistency (reliability) and level of random error emanating thereof. It will be divided in to two: (a) General, covering section A- Demography; section B- Agreement, comparisons and time extension experienced, and section C covering specific research objectives (i) Influencing Principles (ii) Influencing Processes and (iii) Influencing Practices of time management. Table 5, shows each of the questionnaire constructs' (items) Cronbach's α measure.

Table 5: Questionnaire Factor Categories Cronbach's α Scores and Reliability Status

S/N	Factor category	No. of Items	Cronbach's α	Status
1	General (Section A, B & C)	40	0.91	Good
2	Influencing principles	10	0.90	Good
3	Influencing Processes	7	0.88	Good
4	Influencing Practices	14	0.90	Good

Source: Researchers' field survey (2019)

Basically, in Table 5, the Cronbach's α measure recorded for this study revealed that the reliability of the questionnaires' constructs are very high, all exceeding the cut off score of 0.70, which is the standard used by most researchers for high efficiency. This indicates that the questionnaires are highly reliable (consistent) as well as free from random error.

3.5.3.2 Questionnaire Validity Test

Table 6, is a representation of the questionnaire validation reports, it depicts among others observations, remarks from the various expert judges. The following is the summary of expert's recommendation and adjustment made to the questionnaire for the study.

a) A 6-point Likert scale will be use throughout the questionnaire to rate the independent variables
b) A 6-point Likert scale will also be used to rate important questions and comparisons relevant to the study objectives.
c) Some of the variables having similarities in meaning will be clarify and modified in terms of wordings as well as additional explanation where necessary
d) Effective communication and teamwork, effective involvement of stakeholders will be added to the principles of influencing time management, thus bringing the total to 10 from its initial 8 variables.

e) Employment of skillful and competent workforce as a good practice influencing adherence to time management will also be included, thus bringing the total to 14 from its initial 13 variables

f) More than 90% of the independent variables (Principles, Processes and Practice) influencing time management adherence were deemed essential to the objectives of the study by the panel of four (4) judges respondents. Though, some were modified and new ones added to consolidate.

g) The pilot survey questionnaire has two sections (A & B) and sorts to answer 9 questions while the new modified questionnaire has sections A, B, C and will sort to answer 13 questions relevant to the study objectives.

Table 6: Questionnaire Validation Report

Judges	Academic Qualification	Observations	Remarks	Actions Taken
1	Construction Academic professional (PhD)	-Use ordinal scale throughout where necessary. -All the factors of principles, processes and practices time management proposed are all viable -Avoid using YES/NO option as it will knockout respondents with intermediate view	-Use ordinal scale of ≥ 5-scale to test variables or important factors. -Avoid using nominal scale where necessary.	-6- likert scale was used to test all independent variables as well as important additional questions
2	Construction Academic professional (PhD)	-Use ordinal scale of 5 to test the variables -Some of the Processes of Time Management proposed can be marge with one another. All the independent variables (principles, processes and practices proposed are essential) except minimizing time wasters which is useful but not essential	-Use ordinal scale of ≥ 5-scale to test variables or important factors. -Some processes of Time Management stated can be merged -Some variables need modifications	-6- likert scale was used to test all independent variables as well as important additional questions -Some of the independent variables need more modification in terms wordings so as to eliminate similarities or close meanings
3	Construction field expert	-Practices of Time Management such as providing specific direction and job security are not necessary. -Processes of TM such as sequencing of activities & estimating resource requirement are useful but not essential -Principles such as delegation, accountability and responsibilities are useful but not essential.	-More than 85% of the independent variables proposed are essential but have reservation on few. -Practices such as providing specific direction and setting specific goals for people to achieve are similar.	-More clarifications and modifications of some the of the independent variables to be carryout to eliminates commonality
4	Construction field expert	-All the independent variables identified as proposed are relevant	32% deemed useful but not essential while 68% was rated as essential to the study	

Source: Researchers' field survey (2019)

3.6 Method of Data Analysis for Questionnaire Survey

The study is of structured questionnaire approaches to generate data from the respondents. The analysis was conducted with the aid of statistical package for social science (SPSS), the SPSS being user friendly and easier in presentation of data in various forms. It also offers the study a package of programmes for manipulating, analyzing, and presenting data (Inuwa, 2014; Field, 2006). Furthermore, it also allows the presentation of research results with tables, charts and graphs in a simple and comprehensive manner (Field, 2006). The analysis conducted was descriptive statistics in the form of tables, percentages, frequencies for research objectives no. 1 and inferential statistics non-parametric test- Kendall's coefficient of concordance and mean score rankings, chi-square was used for research objective no. 2 and 3; Kendall's Coefficient of Concordance is a measure of the degree or extent of agreement or concordance amongst responses from groups in a certain population (Ugwu & Attah, 2016). As such, the study used Kendall's coefficient to determine respondents' levels of agreement with factors that influence time management in construction project delivery in Gombe state, Nigeria. Correlation, regression and percentages were used to analyzed research objective no. 4; spearman's correlation and multiple regressions were suitable because the data obtained are categorical and in likert scale order. Summary of the methods for data analysis for the research objectives of the study in presented in Table 7.

3.6.1 Correlation and regression coefficient

The Spearman's correlation coefficient is a measure of the strength of a linear association between two variables and is denoted by "r" Wanbui *et al.* (2015) spearman's correlation was used to measure the degree of association between variables under consideration i.e. independent variables: Adherence with Principles, Processes and Practices, and the dependent variable: timely completion. Spearman's correlation coefficients range from -1 to +1. Negative values indicates negative correlation and positive values indicates positive

correlation where Spearman's coefficient <0.3 indicates weak correlation, Spearman's coefficient >0.3<0.5 indicates moderate correlation and Spearman's coefficient>0.5 indicates strong correlation (O'Brien & Scott, 2012).

According to Kothari (2004) regression is the determination of a statistical relationship between two or more variables. In simple regression, we have only two variables, one variable (defined as independent) is the cause of the behaviour of another one (defined as dependent variable). The multiple hierarchical regression which was carried out with SPSS, basically determined the regression denoted by 'R', the R Square, R-Square change etc. were obtained for the study. Also, the regression coefficient standardized Beta value was determined in order to give the cause effect of the independent variables on the dependent variable of the study.

Table 7: Data Analysis Method for the Study Objectives

S/N	Objectives	Method of Data Collection	Method of Analysis
1	Objective One	Surveyed Questionnaire, Literature Review	Frequencies, Percentages
2	Objective Two	Surveyed Questionnaire	Kendall's mean score and ranking
3	Objective Three	Surveyed Questionnaire	Kendall's mean score and ranking
4	Objective Four	Surveyed Questionnaire	Frequencies, Percentages, Correlation and Regression

Source: Researchers' field survey (2019)

3.7 Ethical Considerations

In conducting this study, the researcher adhered with the following ethics: obtaining permission to access the area of the study, ensuring voluntary participation, informed confidentiality and anonymity. The researcher also seeks for an introductory letter from Abubakar Tafawa Balewa University Bauchi.

Furthermore, biasness of any kind ranging from problem statements, choosing research location, selecting sample, data analysis and reporting was avoided.

CHAPTER FOUR

4.0 RESULTS

4.1 Responses to Questionnaire

This study administered eighty eight (88) questionnaires to professionals representing clients, contractors and consultants all grouped under Federal University of Kashere FUK, Federal college of Education Technical FCE-T and Others (firms of consulting and construction organization).

4.1.1 Respondents' questionnaire response rate

Table 8 : Questionnaires Distribution According to Organizations

Respondents	Distribution (No)	Distribution (%)	Returned (No)	Returned %
FCE-T	23	26.1	18	78.3
FUK	30	34.1	26	86.7
Firms	35	39.8	18	51.4
Total	**88**	**100**	**62**	

Source: Researchers' field survey (2019)

Table 8, shows that a total of eighty-eight (88) questionnaires were distributed to the respondents, both FCE-T (23 No) and FUK (30 No) recorded high participation of 78.3% and 83.3% in distribution categories while the firms with 35 number of questionnaire which is the highest recorded average participation of 51.4%.

Table 9: Respondents' Response Rate of Questionnaire

Respondents'	Distribution (No)	Retuned (No)	Non-returned/ Spoiled (No)	Response rate (%)
FCE	23	18	5	29.0
FUK	30	26	4	42.0
Others (firms)	35	18	17	29.5
Total	**88**	**62**	**26**	**100**

Source: Researchers' field survey (2019)

$$\text{Questionnaire response rate} = \frac{\text{Total Number retuned}}{\text{total number distributed}} \times \boldsymbol{100}$$

Generally, the study recorded an overall questionnaire response rate of 70.45%.

Table 9, shows that a total of 62 questionnaires were returned which represent 70.45% response rate and this was used for data analysis of the study. Also, 26 questionnaires were either spoiled or not returned representing 29.55%. This response rate for this type of survey is higher than other studies carried out in the construction industry. Such as, Inuwa (2014) recorded 59% response rate, Abdulkadir *et al.* (2017) 56% response rate, Ayodeji *et al.* (2017) 64% response rate, Olawale and Sun (2010) recorded 44% response rate, Amade *et al.* (2015) 61.% response rate.

This study owes much of its high questionnaire response rates to the following measures:

i. The cover letter humbly solicited for respondents' contribution to the development of Nigeria's construction economy by responding to the questionnaires
ii. The respondents were assured of utmost confidentiality and very interesting.
iii. The wording questions were: short, simple, specific, unambiguous, unbiased.
iv. The responses expected from respondents were constructively guided to be short and precise.
v. The questionnaires were kept to a minimum length for a study of this size.
vi. Physical follow-up was done, visiting the respondents on project construction site, also to a great deal i was assisted by three (3) competent assistants who were workers each in the three group of respondents, hence their colleagues were highly inclined to respond to the questionnaires.

4.1.2 Missing values

The responses from the questionnaires shows that questions were answered adequately and as such recorded nearly zero missing values. Though, Crafford (2007) cited in Inuwa (2014),

acknowledged that missing values in a questionnaire are sometimes inevitable, as some respondents might not be experienced or knowledgeable in some areas. Hence, to avoid the incidence of missing values in the survey; competent, knowledgeable and experience respondents' were surveyed for the study.

4.2 Demographic Profiles of Respondents

For this study the respondents particulars was limited to: Area of specialization, Highest qualification obtained, Years of working experience, Nature of project operation involve, Category of working organization.

4.2.1 Respondents' area of specialization

Figure 2 shows that more than 75% of the respondents are core players in the construction sectors. Though, Engineering and Quantity Surveying professionals have the highest participation in the survey with 22.58% each, followed by the Architects 19.35%, Builder's 14.52%. So, reliable information was used for the work as obtained from those directly involved in the management of building construction. However, the issue of time management is everybody's business, which is also managerial and behavioural in nature. Hence, other professionals opinions representing 12.90% such as Planners, Estate management, Accounting, Land Surveying, Business & Management was also sorted, playing a direct or indirect role for either a client, consultants or contractors to ensure effective and efficient project delivery. Also, the study revealed that project management profession having 8.06% is an emergent trend in Nigeria.

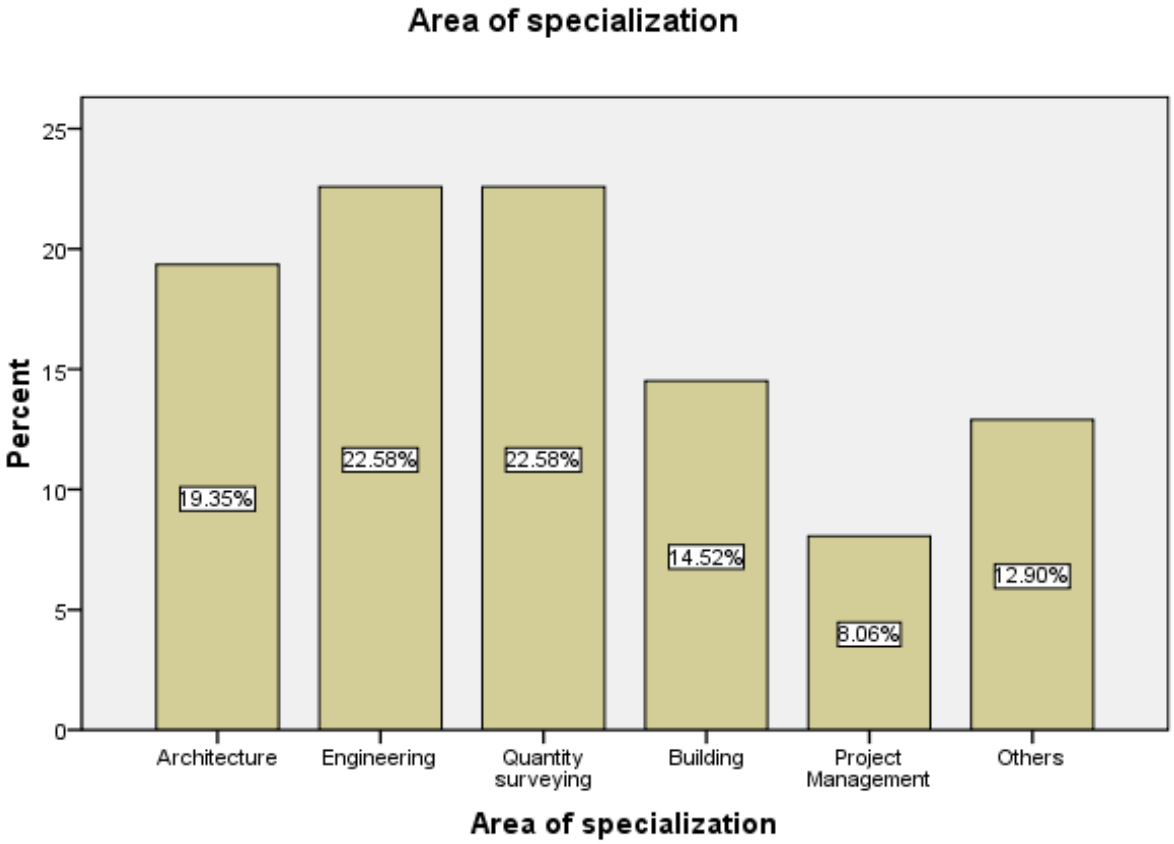

Figure 2: *Respondents' Area of Specialization*
Source: Researchers' field survey (2019)

4.2.2 Respondents' highest academic qualification

Figure 3 shows that virtually all the respondents possess the necessary academic qualifications. The survey shows that the respondents with Degree/HND represent 61.29%, those with post-graduate qualification are 30.65%, and the least was PhD 4.84% and NCE/Diploma 3.23%. As such, more than 90% of the respondents' opinion could be said to be valid and more accurate by virtue of their academic knowledge and qualifications.

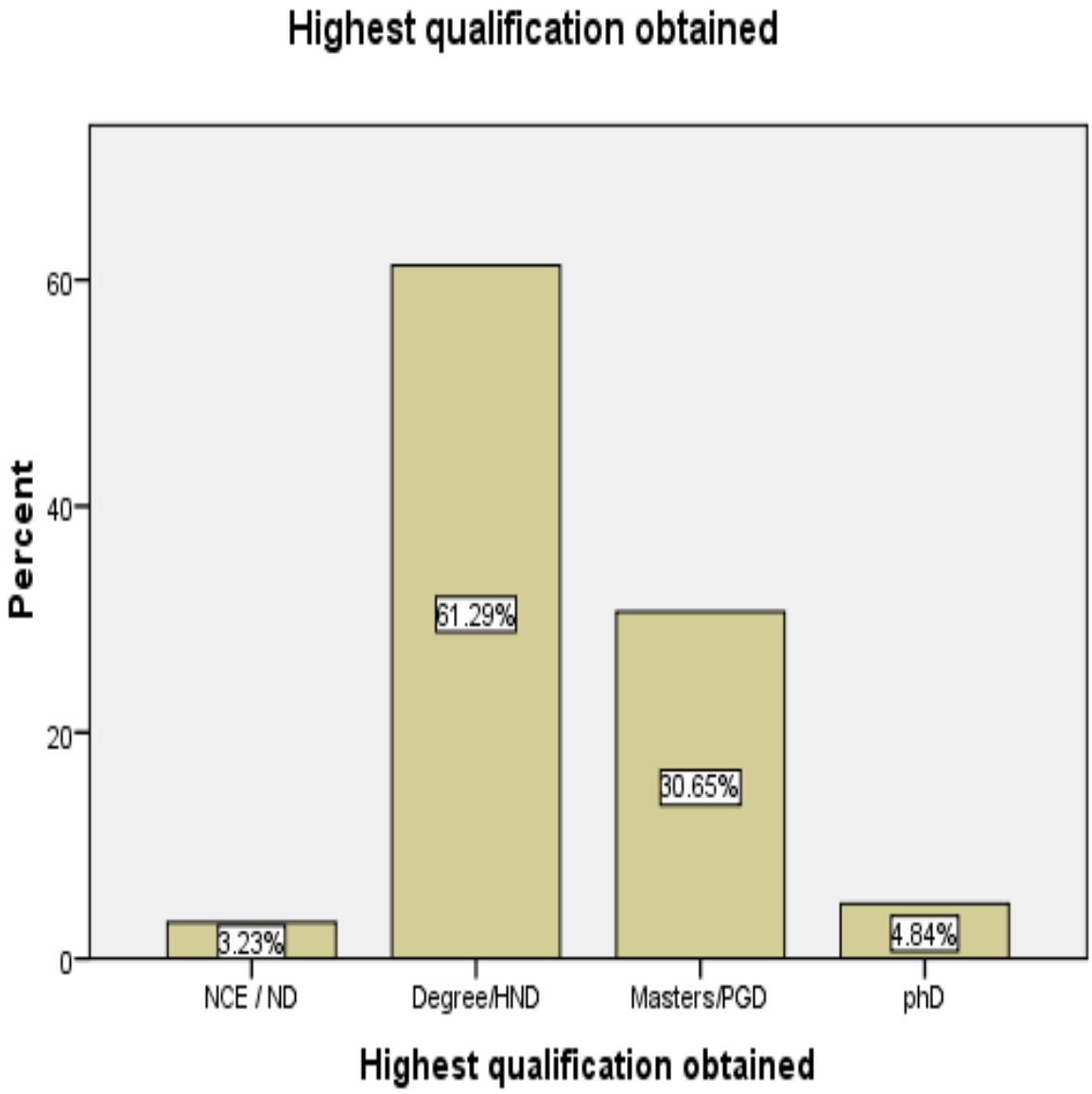

Figure 3: *Respondents' Educational Qualification*
Source: Researchers' field survey (2019)

4.2.3 Respondents' years of working experience

Table 10, is a representation of the respondents' years of working experience. The study revealed that 63% of the respondents have 10 years' working experience in the construction industry while 13% have been working for more than 15 years in the construction industry. As such by virtue of experience, the respondents' are competent to have participated in the survey and therefore, has ensured high content validity of the study.

Table 10: Years of Working Experience

Years of working	Frequency (No)	Percentage
0-5 years	15	24.2
6-10 years	23	37.1
11-15 years	16	25.8
More than 15 years	8	12.9
Total	**62**	**100.0**

Source: Researchers' field survey (2019)

4.2.4 Respondents' nature of project operation involved

Table 11, shows the nature of work the respondents' are involve in a project. The study revealed that 38.7% were involved in monitoring and supervision of the project, which is the highest; this is mostly applied to professionals' representing the client. 21% were involved in the project execution, of which most are representing the contractors'. 13% were involved in the management and planning of the project. However, 27.4% of the respondents' were engaged in either the combination of planning, monitoring/supervision, execution or management aspect of the project.

Table 11: Nature Construction Project Operation

Nature of project	Frequency	Percentages
Planning	7	11.3
Execution	13	21.0
Monitoring/Supervision	24	38.7
Management	1	1.6
Monitoring/supervision & Execution	3	4.8
Planning/Execution & Monitoring/Supervision	2	3.2
Planning & Monitoring/Supervision	5	8.1
Monitoring / Supervision & Management	1	1.6
All of the above	6	9.7
Total	**62**	**100.0**

Source: Researchers' field survey (2019)

4.2.5 Respondents' category of working organization

Figure 4, is the representation of the respondents working organization; the study shows that virtually all the players in the construction project have almost equal representation. Though, the clients' have the highest with 39% this may be due to the fact that clients are most affected by the incidence of time-overrun which in turn affect their initial budget. 32% have identified as working for the contractors' while 29% identified with the consultants. This representation therefore depicts the primary triads of parties involved in the management of construction projects: client, contractor and, consultant (Usman *et al.* 2012 cited in Inuwa, 2014). Hence, there is adequate representation and content validity of the data obtained from the respondents.

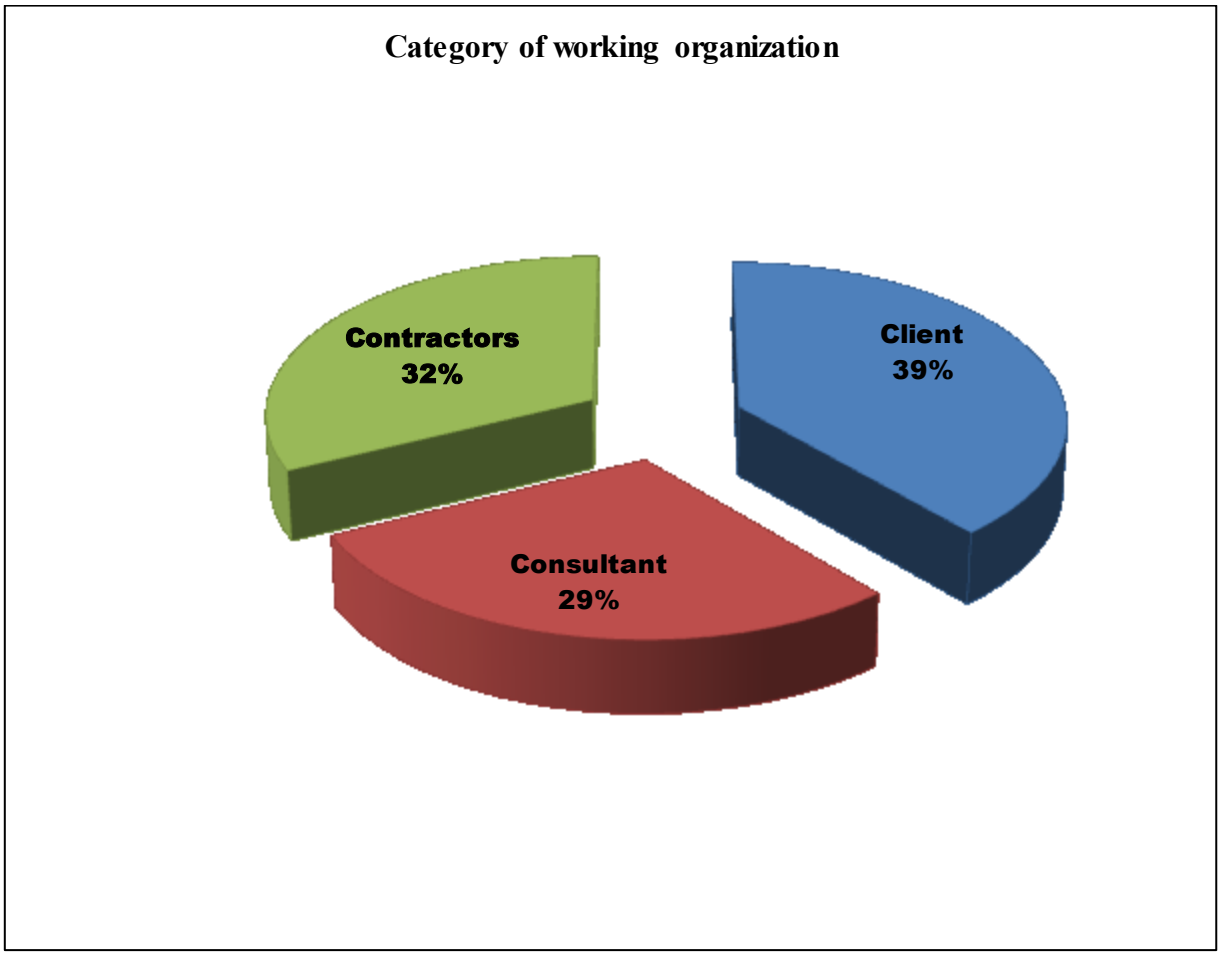

Figure 4: *Respondents' Category of Working Organization*
Source: Researchers' field survey (2019)

4.3 Respondents' Agreement, Comparisons and Time Extension Experienced in Construction Project

Table 12, Shows that when a question was posed to the respondents "what is your professional opinion on this statement "stakeholders pays more attention and resources to managing cost as compare to time during construction project delivery?" the study shows that 94% of the respondents were in agreement with the notion that the issue of time management during construction project delivery is under looked by stakeholder's in favour of cost management. The finding was in agreement with the findings of previous researchers such as Olawale and Sun (2010), Inuwa (2014) and Abdulkadir *et al.* (2017). Though, the clients are most affected by the issue of delay or time-overrun. Also, the precedence of given less emphasis to time management is like building a house on nothing, this is due to the fact that time can be a common denominator to satisfaction of clients and final users, quality of project delivered, cost (inflation), timely completion and it can also affect the reputation of contractors' and consultants' having records of failure to deliver project within schedule.

Table 12: Respondents Comparisons between Time and Cost Management in Project

Level of Agreement	Frequency (No)	Percentage
Completely Disagree	1	1.6
Mostly Disagree	2	3.2
Slightly Disagree	1	1.6
Slightly Agree	6	9.7
Mostly Agree	28	45.2
Completely Agree	24	38.7
Total	**62**	**100.0**

Source: Researchers' field survey (2019)

Figure 5 shows that, when a question was posed to the respondents "have you ever experience extension in construction project delivery time?" 98% of the respondents were in agreement. As such, the findings revealed that time-overrun is still a major issue in construction project delivery.

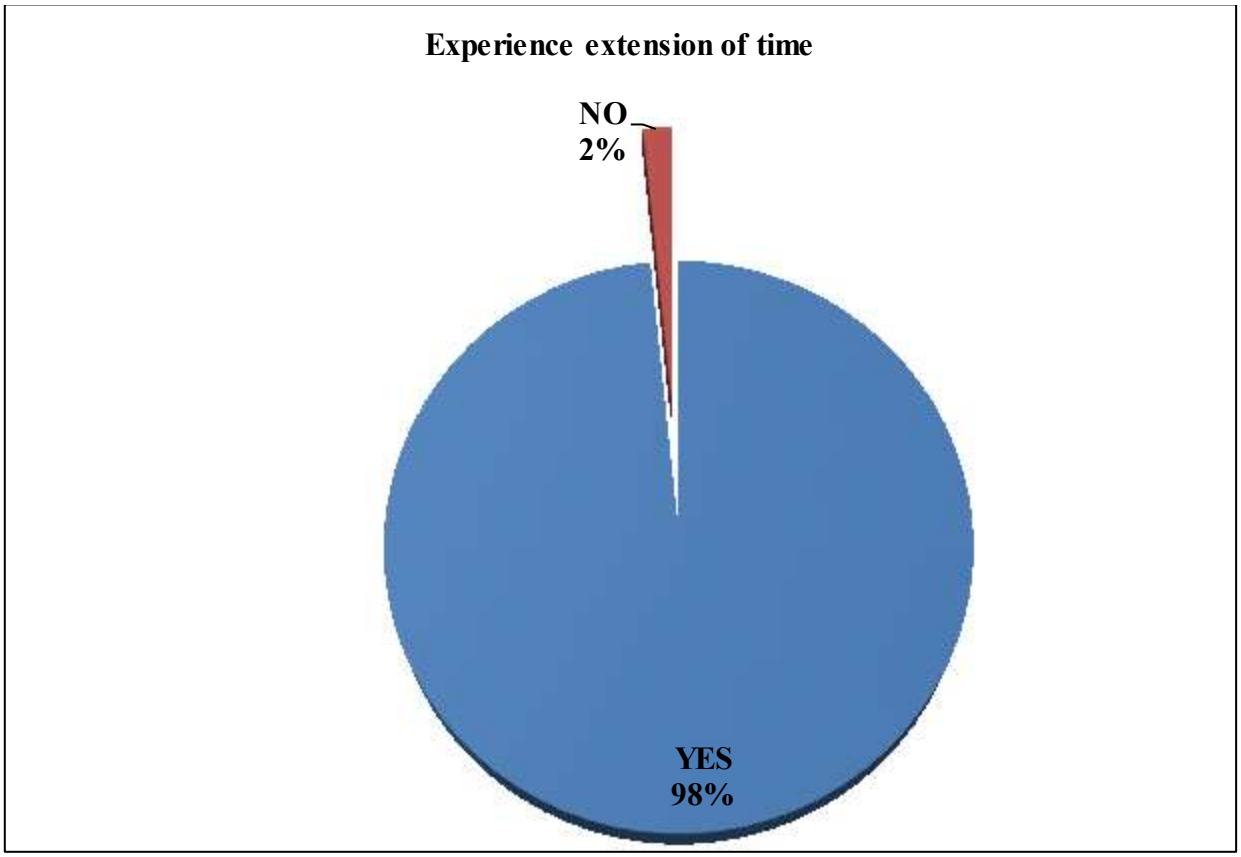

Figure 5: *Respondents Experience in Project Delivery Time*
Source: Researchers' field survey (2019)

Figure 6, shows that virtually all the respondents of the study have experienced an extension in initially agreed project delivery time. However, 41.94% have experience 1-6 months extension which is the highest, followed closely by 37.10% that have experience time overrun of 6-12 months, while 19.35% have experience extension of more than 12 months. The finding is in agreement with Lekan *et al.* (2017) in their studies of cost and time performance of developing economy, they concluded that 92% of the respondents have experienced between 1-24 months' time extension.

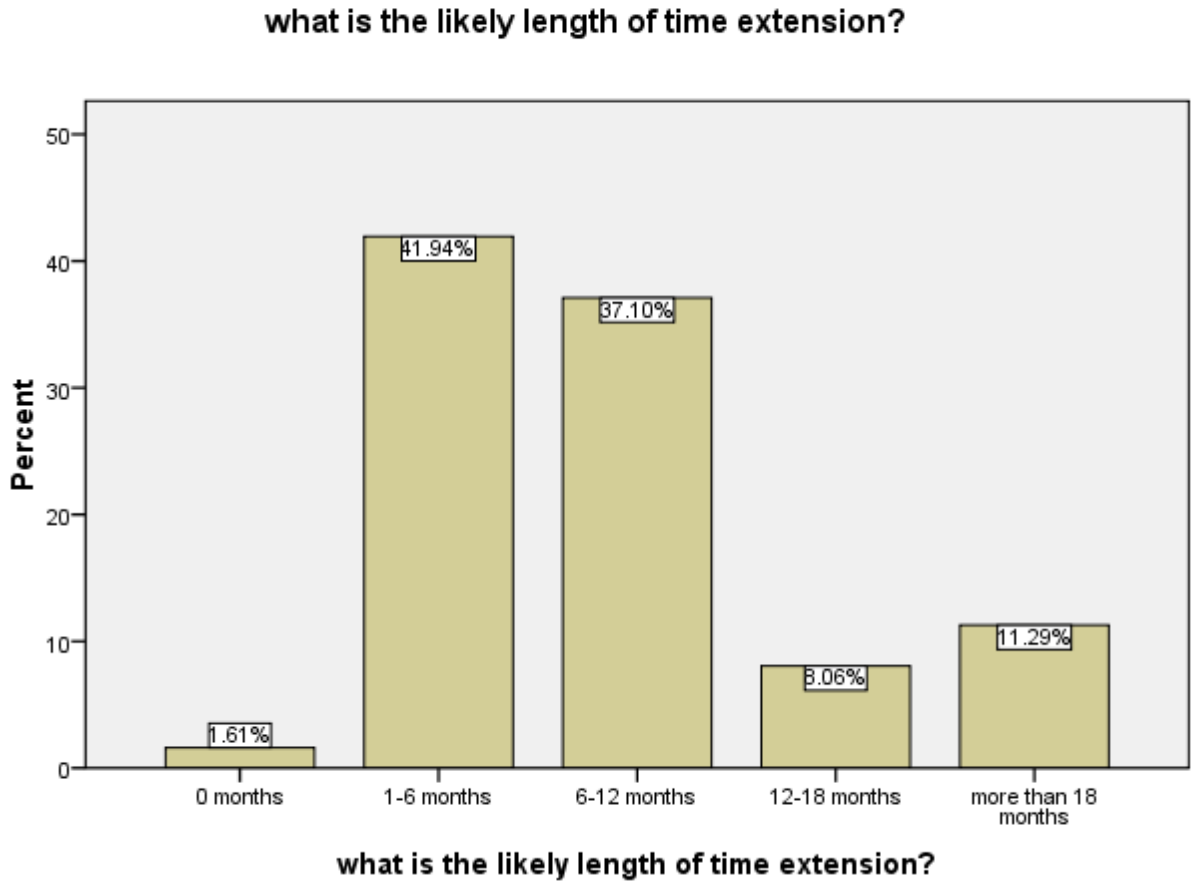

Figure 6: *Respondents Length of Time Extension Experience in Project*
Source: Researchers' field survey (2019)

4.4 Respondents Test of Association

Basically, this study assesses the population of respondents i.e. clients, consultants and contractors aim at discovering their level of agreement in respect to the independent variables respond for the study.

4.4.1 Kruskal-Wallis test

Basically, a non-parametric test for the independent samples was carried out on the data set to compare the variables across the three categories of respondents involved in the construction projects i.e. Client, Consultants and contractors. Kruskal-Wallis is the most popular and the most suitable non-parametric test for assessing the level of agreement among group in relation

to the independent variables. It is non-parametric test of null hypothesis that is used to evaluate whether different categories of respondents differ by comparing scores of a particular hypothesis (Bello, 2017). Kruskal-Wallis used Mean ranked, Chi-square and *p*-Value to test level of association and significance. According to Bello (2017), p-Value below 0.05 in Kruskal-Wallis test indicates that there is a significant difference between the groups of participant about the affected variable at 95% confidence level, while any p-value above 0.05 indicates that there is no significant difference among the groups.

In this research, the analysis revealed that for instance in the principles influencing time management only variables such as: Monitoring, controlling and evaluation of project work; effective communication and teamwork; and effective stakeholders involvement have p-Values of .004, .024 and .010 respectively which is less the standard 0.05 significant level. In the Processes influencing time management variables with the exception of Define activities to be undertaken with p-Value of .219, virtually all the other variables in this category have their p-Values < 0.05. While the clients, consultants and contractors seemed to have strong divergent views on the Practices influencing time management as all their p-Values is more than the standard of 0.05 significance level.

Table 13 is the representation of the summary of Kruskal-Wallis test of association among the respondents of the study. The findings revealed that there exists a statistically significant difference in the continuous outcome especially with respect to Principles and Processes as their p-Values (.027 and .001) are < 0.05 significant level among the three category of respondents, while there is no statistically difference in the continuous outcome among groups with respect to Practices influencing time adherence as the p-Value (.428) > 0.05 standard for the study. In overall we can conclude that there is a major proportionate agreement among the 3-group i.e. clients, consultants and contractors in their responses

Table 13: Kruskal-Wallis Test of Association

Test Statistics[a,b]

	Principles	Processes	Practices
Chi-Square	7.206	13.126	1.697
Df	2	2	2
Asymp. Sig.	.027	.001	.428

a. Kruskal Wallis Test

b. Grouping Variable: Category Of Working Organization

Source: Researchers' field survey (2019)

4.5 Data Analyses for the Study Objectives

This sub-section analyzed results based on the research objectives of the study using tables, percentages, frequencies, mean score ranking, correlation and regression analysis.

4.5.1 Objective 1: To identify time management factors in construction project delivery

Objective one basically aimed at identifying factors influencing time management during construction project delivery. The method of data collection used to achieved this objective are both primary and secondary, while secondary method was used to obtained data through extensive literature review from previous studies, the primary method involves the respondents identifying the variables obtained from the secondary sources. as such this objective was achieved as shown in section 2.4.1, 2.4.2 and 2.4.3 the study identified thirty one factors:

Ten principles influencing time management in construction project, which are: (1) Planning (2) Identification of purpose (setting goals) (3) Prioritization of activities (4) Delegation of responsibilities (5) Scheduling of activities (6) Accountability, integrity and responsibility (7) Minimizing time wasters (Phone calls, emails, chatting etc.) (8) Monitoring, control and evaluation (9) Communication and teamwork (10) Involvement of Stakeholders.

Seven processes influencing time management in construction project delivery was also identified, which are: (1) Plan Schedule Management (2) Define Activities (3) Sequence Activities (4) Estimate Activity Resources (5) Estimate Activity Duration (6) Develop Schedule (7) Control Schedule.

The fourteen practices influencing time management were also identified and grouped in to three, namely: *Economic policy consideration:* Availability of Plants, equipment and machineries; Availability of materials and Availability of supervision. *Management policy consideration:* commitment and providing specific direction; Setting timeline and project deadline; Setting specific goals for people to achieve; Monitoring and updates on the progress of work; Involving team members and Employment of skillful workers. *Motivational policy consideration:* Job security; a sense of belonging and identification with the project team; opportunity for extending skills and experience through continuous learning and challenging task; Recognition of contribution and Exercise of power.

Table 14 is the representation of the respondents' ratings on time management factors in percentages. The result revealed that 86.3% of the respondents were in agreement as against 13.7% who were not in a 6-point likert scale. All the principles, processes and practices in consideration were identified and accepted as relevant time management factors as a result of each scoring more than 70% scores from the respondents.

Table 14: Respondents Ratings of Time Management Factors

Time Management Factors	Levels of Agreement (%)								Remarks
	Disagreement				Agreement				
	1	2	3	Sum	4	5	6	sum	
Principles influencing time management									
Effective Planning		6.5	14.5	21.0	8.1	40.3	30.6	79.0	Accepted
Identification of purpose (setting goals)	1.6	4.8	11.3	17.7	21.0	40.3	21.0	82.3	Accepted
Effective Prioritization of activities	3.2	4.8	12.9	20.9	24.2	33.9	21.0	79.1	Accepted
Effective Delegation of responsibilities and activities	3.2	3.2	11.3	17.8	27.4	37.1	17.7	82.2	Accepted
Effective Daily/weekly scheduling of activities	1.6	8.1	12.9	22.5	19.4	37.1	21.0	77.5	Accepted
Ensure Accountability, integrity and responsibility	8.1	1.6	11.3	20.9	21.0	33.9	24.2	79.1	Accepted
Effective Minimization and Managing time wasters	6.5	8.1	11.3	25.8	38.7	22.6	12.9	74.2	Accepted
Effective Monitoring, controlling and Evaluation of project work	1.6	4.8	8.1	14.6	16.1	41.9	27.4	85.4	Accepted
Effective Communication and teamwork		8.1	3.2	11.2	19.4	35.5	33.9	88.8	Accepted
Effective involvement of Stakeholders		4.8	11.3	16.1	35.5	21.0	27.4	83.9	Accepted
Processes of time management									
Plan schedule management		4.8	14.5	19.3	25.8	32.3	22.6	80.7	Accepted
Define activities to be undertaken	1.6	3.2	11.3	16.1	38.7	32.3	12.9	83.9	Accepted
Sequencing of activities		9.3	13.1	22.4	25.8	33.9	17.9	77.6	Accepted
Estimating resource requirement for activities		6.5	3.2	9.7	29	38.7	22.6	90.3	Accepted
Estimating duration of activities		6.5	11.3	17.8	27.3	32.3	22.6	82.2	Accepted
Developing schedule for the project	1.6	1.6	6.5	9.7	25.8	51.6	12.9	90.3	Accepted

Monitoring and controlling schedule of the project		1.6	9.7	11.3	29	32.3	27.4	88.7	Accepted
Practices influencing time management									
By ensuring availability of Plants, Equipment and Machineries		1.6	4.8	6.4	32.3	22.6	38.7	93.6	Accepted
By ensuring availability of materials	1.6		4.8	6.4	16.2	27.4	50.0	93.6	Accepted
By ensuring availability of effective supervision and management of staff	3.2		4.8	8.0	14.5	30.6	46.8	91.9	Accepted
By ensuring commitment and providing good leadership direction		1.6	6.5	8.1	29.0	21.0	41.9	91.9	Accepted
By Setting timeline and project dateline	1.6		8.1	9.7	19.4	38.7	32.3	90.4	Accepted
By Setting specific goals for people to achieve		1.6	6.5	8.1	21.0	38.7	32.3	92.0	Accepted
By conducting periodic monitoring, controlling and updating the progress of work done			1.6	1.6	17.7	35.5	45.2	98.4	Accepted
By ensuring team integration		1.6	11.3	12.9	14.5	37.1	35.5	87.1	Accepted
By employment of skillful and competent workforce			4.8	4.8	9.7	27.4	58.1	95.2	Accepted
By ensuring job security for workers	1.6	3.2	4.8	9.6	29.0	29.0	32.3	90.3	Accepted
By ensuring a sense of belonging and identification with the project team		4.8	8.1	12.9	19.4	41.9	25.8	87.1	Accepted
By Provide opportunity for extending skills & experience through continuous learning		4.8	9.7	14.5	22.6	21.0	41.9	85.5	Accepted
By ensuring adequate recognition of workers contribution		4.8	1.6	6.4	25.8	33.9	33.9	93.6	Accepted
By exercising power (punishment of defaulting workers/team)	8.1	3.2	9.7	21.0	27.4	17.7	33.9	79.0	Accepted
Total				**13.7**				**86.3**	

1-Completely Disagree, 2-Mostly Disagree, 3-Slightly Disagree, 4-Slightly Agree, 5-Mostly Agree, 6-Completely Agree
Source: Researcher's field survey (2019)

4.5.2 Objective 2: To examine the level of adherence with the principles and processes of time management in construction project delivery

Objective two basically aimed at examining the respondents' level of adherence or willingness to adhere with the principles and processes influencing time management in construction project delivery, a 6-point likert scale (1-Never adhere to 6-Very frequently adhere) was used to assess the respondents' level of adherence. Findings were presented in frequencies, percentages, mean score and also ranked in order of their importance.

i. Level of adherence with the principles of time management

Table 15 is the representation of the respondents' ratings on the level of adherence on the principles of time management. The results revealed that 81.15% of the respondents are adhering or willing to adhere with the principles as against 18.85% who are unwilling to adhere.

Table 15: Respondents Level of Adherence with the Principles of Time Management

S/n	Principles Influencing Time Management	Non-Adherence (%)				Adherence (%)				Total (%)
		Never adhere	Very rarely	Rarely	Sum	Occasionally	Frequently	Very frequently	Sum	
1.	Effective Planning		6.5	14.5	**21.0**	8.1	40.3	30.6	**79.0**	**100**
2.	Identification of purpose (setting goals)	1.6	4.8	11.3	**17.7**	21.0	40.3	21.0	**82.3**	**100**
3.	Effective Prioritization of activities (Arranging and starting activities in order of importance to the completion time)	3.2	4.8	12.9	**20.9**	24.2	33.9	21.0	**79.1**	**100**
4.	Effective Delegation of responsibilities and activities	3.2	3.2	11.3	**17.8**	27.4	37.1	17.7	**82.2**	**100**
5.	Effective Daily/weekly scheduling of activities	1.6	8.1	12.9	**22.5**	19.4	37.1	21.0	**77.5**	**100**
6.	Ensure Accountability, integrity and responsibility	8.1	1.6	11.3	**20.9**	21.0	33.9	24.2	**79.1**	**100**
7.	Effective Minimization and Managing time wasters (Phone calls, emails, social media chatting, unscheduled visitors etc.)	6.5	8.1	11.3	**25.8**	38.7	22.6	12.9	**74.2**	**100**
8.	Effective Monitoring, controlling and Evaluation of project work	1.6	4.8	8.1	**14.6**	16.1	41.9	27.4	**85.4**	**100**
9.	Effective Communication and teamwork		8.1	3.2	**11.2**	19.4	35.5	33.9	**88.8**	**100**
10.	Effective involvement of Stakeholders		4.8	11.3	**16.1**	35.5	21.0	27.4	**83.9**	**100**
	Total				**18.85**				**81.15**	**100**

Source: Researcher's field survey (2019)

Table 16 shows the mean score and rankings in order of importance of the principles influencing adherence to time management. The results revealed that the five most important principles the respondents are adhering or willing to adhere are: Effective communication and teamwork, with mean score of (6.37) was ranked "first"; Effective planning; Effective monitoring, controlling and evaluation of project, were ranked "second" each having mean score (6.10); Identification of purpose (setting goals), with mean score (5.84) was ranked "fourth" and effective involvement of stakeholders, with mean score of (5.41) was ranked fifth. The least factors in order of adherence are: Delegation, Prioritization and Managing time wasters were ranked "eighth", "ninth" and "tenth".

Table 16: Kendall's Mean Score and Ranking of Principles influencing Time Management

S/N	Principles Influencing Time Management	Mean Score	Rank
1	Effective communication and teamwork	6.37	1
2	Effective planning	6.10	2
3	Effective monitoring, controlling and evaluation of project	6.10	2
4	Identification of purpose (setting goals)	5.84	4
5	Effective involvement of stakeholders	5.41	5
6	Ensuring accountability, integrity and responsibilities	5.36	6
7	Effective daily/weekly scheduling of activities	5.30	7
8	Effective delegation of activities and responsibilities	5.27	8
9	Effective prioritization of activities	5.14	9
10	Effective Minimization & managing time wasters	4.10	10

Source: Researchers' field survey (2019)

However, Table 17 further revealed that the chi-square for the study was 31.515; the Kendall's weight coefficient of concordance is 0.056 which is far away from 1, as such the respondents views were highly not in consonance with each other. But, in general there seems to be a significant relationship among the respondents levels of adherence with the principles of time management in construction project delivery as the p-value obtain $0.000 < 0.05$ for the study.

Table 17: Test statistics on the Principles of Time Management

N	Kendall's Weight	Chi-Square	Df	Asymptotic Significance
62	0.056	31.515	9	0.000

Source: Researchers' field survey (2019)

ii. Level of adherence with the processes of time management

Table 18 is the representation of the respondents' ratings on the level of adherence with the processes of time management. The result revealed that 84.81% of the respondents are adhering or willing to adhere with the processes as against 15.19% who are unwilling to adhere.

Table 18: Respondents level of Adherence with the Processes of Time Management

S/n	Processes influencing time management	Non-Adherence (%)				Adherence (%)				
		1	2	3	Sum	4	5	6	Sum	Total (%)
A	Plan schedule management		4.8	14.5	19.3	25.8	32.3	22.6	80.7	100
B	Define activities to be undertaken	1.6	3.2	11.3	16.1	38.7	32.3	12.9	83.9	100
C	Sequencing of activities		9.3	13.1	22.4	25.8	33.9	17.9	77.6	100
D	Estimating resource requirement for activities		6.5	3.2	9.7	29	38.7	22.6	90.3	100
E	Estimating duration of activities		6.5	11.3	17.8	27.3	32.3	22.6	82.2	100
F	Developing schedule for the project	1.6	1.6	6.5	9.7	25.8	51.6	12.9	90.3	100
G	Monitoring and controlling schedule		1.6	9.7	11.3	29	32.3	27.4	88.7	100
	Total				**15.19**				**84.81**	**100**

Never Adhere =1, Very Rarely =2, Rarely =3, Occasionally =4, Frequently =5, Very Frequently = 6

Source: Researchers' field survey (2019)

Table 19 is a representation of the mean score and rankings on the processes of time management. The result revealed that the three most important processes the respondents claimed are adhering or willing to adhere are: Monitoring and controlling schedule of the project, with mean score (4.38) was ranked "first"; Estimating resource requirement for activities, with mean score (4.37) was ranked "second" and Developing schedule for the

project, with mean score (4.21) was ranked "third". While the least ranked was defined activities to be performed with mean score (3.52) and was ranked "seventh"

Table 19: Kendall's Mean Score and Ranking on the Processes of Time Management

Processes influencing time management	Mean score	Ranking
Monitoring and controlling schedule of the project	4.38	1
Estimating resource requirement for activities	4.37	2
Developing schedule for the project	4.21	3
Estimating duration of activities	3.99	4
Plan schedule management	3.96	5
Sequencing of activities	3.57	6
Define activities to be undertaken	3.52	7

Source: Researchers' field survey (2019)

Table 20 further revealed that, the chi-square obtained was 14.015; the Kendall's weight coefficient of concordance is 0.038 which is far away from 1, as such the respondents views were highly not in consonance with each other. But, in general there seems to be a significant relationship between the levels of adherence with the processes of time management in construction project delivery as the *p*-value obtained $0.029 < 0.05$ for the study.

Table 20: Test Statistics on the Processes of Time Management

N	Kendall's Weight	Chi-Square	Df	Asymptotic Significance
62	0.038	14.015	6	0.029

Source: Researchers' field survey (2019)

4.5.3 Objective 3: To assess practices influencing time management in construction project delivery

Objective three basically determined from the respondents on whether some practices proposed after an extensive review of literature are capable of influencing time management in construction project delivery. Fourteen practices were proposed which were grouped in to economic, management and motivational policy consideration. The respondents were asked to

rate their views using a 6-point likert scale (1-completely Disagree to 6-completely Agree). Findings obtained are presented in tables, frequencies in percentage, mean score and rankings based on importance.

Table 21, is a representation of respondents ratings on the practices influencing time management. The results revealed that 90.69% of the respondents were in agreement as compare to 9.31% that were in disagreement with the proposed practices influencing time management. Also, in factor rating sums, virtually all the factors proposed were rated above 85% with the exception of exercise of power and punishment which has the lowest rating on agreement of 79% and also has the highest rating on disagreement with 21%.

Table 21: Respondents Ratings on the Practices Influencing Time Management

Practices Influencing Time Management	Disagreement (%)				Agreement (%)				Total (%)
	1	2	3	Sum	4	5	6	Sum	
Economic Policy Consideration									
1. By ensuring availability of Plants, Equipment and Machineries		1.6	4.8	**6.4**	32.3	22.6	38.7	**93.6**	**100**
2. By ensuring availability of materials	1.6		4.8	**6.4**	16.2	27.4	50.0	**93.6**	**100**
3. By ensuring availability of effective supervision and management of staff	3.2		4.8	**8.0**	14.5	30.6	46.8	**91.9**	**100**
Management Policy Consideration									
4. By ensuring commitment and providing good leadership direction		1.6	6.5	**8.1**	29.0	21.0	41.9	**91.9**	**100**
5. By Setting timeline and project deadline (starting & finishing date)	1.6		8.1	**9.7**	19.4	38.7	32.3	**90.4**	**100**
6. By Setting specific goals for people to achieve		1.6	6.5	**8.1**	21.0	38.7	32.3	**92.0**	**100**
7. By conducting periodic monitoring, controlling and updating progress of work done			1.6	**1.6**	17.7	35.5	45.2	**98.4**	**100**
8. By ensuring team integration (collaborative involvement of all team members)		1.6	11.3	**12.9**	14.5	37.1	35.5	**87.1**	**100**
9. By employment of skillful and competent workforce			4.8	**4.8**	9.7	27.4	58.1	**95.2**	**100**
Motivational Policy Consideration									
10. By ensuring job security for workers	1.6	3.2	4.8	**9.6**	29.0	29.0	32.3	**90.3**	**100**
11. By ensuring a sense of belonging and identification with the project team		4.8	8.1	**12.9**	19.4	41.9	25.8	**87.1**	**100**
12. By Provide opportunity for extending skills and experience through continuous learning and challenging tasks		4.8	9.7	**14.5**	22.6	21.0	41.9	**85.5**	**100**
13. By ensuring adequate recognition of workers contribution (Paying bonuses, over-time, issuing leave, giving awards etc.)		4.8	1.6	**6.4**	25.8	33.9	33.9	**93.6**	**100**
14. By exercising power (punishment of defaulting workers/team)	8.1	3.2	9.7	**21.0**	27.4	17.7	33.9	**79.0**	**100**
Total				**9.31**				**90.69**	**100**

Source: Researchers' field survey (2019) **1-Completely Disagree, 2-Mostly Disagree, 3-Slightly Disagree, 4-Slightly Agree, 5- Mostly Agree 6-completely Agree**

Table 22 is the representation of group performance of practices influencing construction project delivery, findings from the study revealed that availability of materials; effective supervision and management of staff were the most favourable in economic policy having the highest mean of 5.18 and 5.10 respectively. Employment of skillful and competent workforce; periodic monitoring and updating were the most important practices in management policy having the highest mean of 5.39 and 5.24. Motivational policy consideration have adequate reward system; opportunity for extending skills via learning and challenging tasks as the most important having the highest mean of 4.90 and 4.86 respectively. However, the standard deviation in general has revealed that there exist close agreement in the respondents response.

Table 22: Group Performance of Practices Influencing Construction Project Delivery

S/n	Factors	N	Mean	Std. Dev.
	Economic policy consideration			
1.	By ensuring availability of Plants, Equipment and Machineries	62	4.92	1.029
2.	By ensuring availability of materials	62	5.18	1.048
3.	By ensuring availability of effective supervision and management of staff	62	5.10	1.155
	Management policy consideration			
4.	By ensuring commitment and providing good leadership direction	62	4.95	1.062
5.	By Setting timeline and deadline for project	62	4.90	1.051
6.	By Setting specific goals for people to achieve	62	4.94	0.973
7.	By conducting periodic monitoring, controlling and updating the progress of work done	62	5.24	0.803
8.	By ensuring team integration	62	4.94	1.054
9.	By employment of skillful and competent workforce	62	5.39	0.856
	Motivational policy consideration			
10.	By ensuring job security for workers	62	4.77	1.151
11.	By ensuring a sense of belonging and identification with the project team	62	4.76	1.082
12.	By Provide opportunity for extending skills and experience through continuous learning and challenging tasks	62	4.86	1.213
13.	By ensuring adequate recognition of workers contribution (Paying bonuses, over-time, issuing leave, giving awards etc.)	62	4.9	1.051
14.	By exercising power (punishment of defaulting workers/team)	62	4.45	1.522

Source: Researchers' field survey (2019)

Table 23 is a representation of Kendall's mean score and rankings of the most important practices influencing time management. The study shows that the five most important practices influencing time management are: By employment of skillful & competent workforce, with mean score of (9.24) was ranked "first"; by ensuring availability of materials, with mean score of (8.64) was ranked "second"; by conducting periodic monitoring, controlling and updating the progress of work done, with mean score of (8.53) was ranked "third"; by ensuring availability of effective supervision and management of staff, with mean score of (8.41) was ranked "fourth" and by ensuring commitment and providing good leadership direction, with mean score of (7.52) was ranked "fifth". Also, the least ranked are: job security for workers, with mean score of (6.60); ensuring a sense of belonging and identification with the project team, 6.57 mean score and exercising power and punishment, 6.27 mean score were ranked "twelfth", thirteenth" and "fourteenth" respectively in order of importance.

However, Table 24 further revealed that the chi-square obtained is 48.697; the Kendall's weight coefficient of concordance is 0.060 which is far away from 1, as such the respondents views were highly not in consonance with each other. But, in general there seems to be a significant relationship between the respondents practices influencing adherence to time management in construction project delivery as the *p*-value obtained $0.000 < 0.05$ for the study.

Table 23: Kendall's Mean Score and Rankings of Practices Influencing Time Management

Practices Influencing Time Management	Mean score	Ranking
a) By employment of skillful and competent workforce	9.24	1
b) By ensuring availability of materials	8.64	2
c) By conducting periodic monitoring, controlling and updating the progress of work done	8.53	3
d) By ensuring availability of effective supervision and management of staff	8.41	4
e) By ensuring commitment and providing good leadership direction	7.52	5
f) By setting timeline and project deadline	7.37	6
g) By ensuring availability of plants, equipment and machineries	7.34	7
h) By ensuring team integration	7.15	8
i) By providing opportunity for extending skills and experience through learning and challenging task	7.15	8
j) By setting specific goals for people to achieve	7.11	10
k) By ensuring adequate reward and recognition of workers contribution	7.10	11
l) By ensuring job security for workers	6.60	12
m) By ensuring a sense of belonging and identification with the project team	6.57	13
n) By exercising power and punishment	6.27	14

Source: Researchers' field survey (2019)

Table 24: Test Statistics on the Practices Influencing Time Management

N	Kendall's Weight	Chi-Square	Df	Asymptotic Significance
62	0.060	48.697	13	0.000

Source: Researchers' field survey (2019)

4.5.4 Objective 4: To determine the effects of time management factors on construction project delivery

This objective was achieved using correlation and Hierarchical multiple regression. The correlation was used to first relate the independent variables of the study i.e. Principles, Processes and influencing Practices with timely completion of construction project which was the dependent variable. The regression model was specified to produce the model summary and to determine the individual influences of each of the independent variables or predictors on the dependent variable.

Table 25, is a representation of the effects of time management factors on timely completion of projects. Findings shows that when a question was posed to the respondents "what is the effects of adherence with the principles, processes and practices on timely completion of construction project in Gombe State, Nigeria?" the respondents were assess using a 6-point likert scale of 1-completely low to 6-completely high. The study revealed that 92% of the respondents were in agreement with high effects while only 8% are in agreement with low effects. Furthermore, 50% of the respondents are in agreement that it will have a completely High effect on timely completion of project; 38.7% agreed it will have mostly high effect on timely completion of project.

Table 25: Respondents' Agreement on the Effects of Time Management Factors on Timely Completion of Construction Project

Level of Agreement	Frequency (No)	Percentages
Completely Low	1	1.6
Mostly Low	2	3.2
Slightly Low	2	3.2
Slightly High	2	3.2
Mostly High	24	38.7
Completely High	31	50.0
Total	**62**	**100.0**

Source: Researchers' field survey (2019)

Table 26 is the representation of the relationships results between the study variables; timely completion is dependent upon time management factors "principles, processes and practices" which are the independent variables using spearman's correlation. The result revealed that there were virtually significant correlations at 0.01 levels between all the independents variables of the study. But, only factors under practices of time management has a significant correlation of .340 i.e. 34% at 0.01 level of significance on timely completion and there exist a significant relationship between them, its p-Value was 0.007< 0.05. Therefore, practices influencing time management had a moderate positive strength relationship with timely completion of construction project, indicating that it can have a moderate cause effects on timely completion of construction project and the results was in consonance with <0.3 for weak, ≥0.3<0.5 for moderate and ≥0.5 for a strong relationship (O'Brien & Scott, 2012).

Table 26: Correlation of Time Management Factors and Construction Project Delivey

Spearman's Rho	**N = 62**	**Timely Completion**	**Principles**	**Processes**	**Practices**
Timely completion	Correlation Coefficient	1.000			
	Sig. (2-tailed)				
Principles	Correlation Coefficient	.167	1.000		
	Sig. (2-tailed)	.195			
Processes	Correlation Coefficient	.107	.759**	1.000	
	Sig. (2-tailed)	.410	.000	.	
Practices	Correlation Coefficient	.340**	.433**	.481**	1.000
	Sig. (2-tailed)	.007	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed)

Source: Researchers' field survey (2019)

Table 27 is the regression model summary of the study produced using Hierarchical multiple regression. The block 1 and 2 models of the study produced R-Values of 0.189 and R-Square values of 0.036 respectively .i.e. both models explains 3.6% of the variance (.036 x100). The block 3 models consisting of all the three independent variables produced an R-Value of

0.343 and R-Square value of 0.118 which explains 11.8% of the variance (.118 x100). However, the R-Square change value of .082 i.e. Principles, Processes and Practices explains an additional 8.2% of timely completion of construction project which is statistically significant at 0.024 value.

Table 27: Regression Model Summary for the Study

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error Of The Estimate	Change Statistics				
					R Square Change	F Change	Df1	Df2	Sig. F Change
1	.189[a]	.036	.020	1.07101	.036	2.221	1	60	.141
2	.189[b]	.036	.003	1.08004	.000	.001	1	59	.977
3	.343[c]	.118	.072	1.04198	.082	5.389	1	58	.024

a. Predictors: (Constant), Principles, b. Predictors: (Constant), Principles, Processes
c. Predictors: (Constant), Principles, Processes, Practices
d. Dependent Variable: Construction project delivery (Timely Completion)
Source: Researcher's field survey (2019)

Table 28, is the presentation of the multiple regression coefficient of the study, the model established that Y (Dependent variable = timely completion), Ɛ = Error term and that by taking all the independent variables into account i.e. (X_1) Principles, (X_2) Processes, (X_3) Practices constant at Zero influences timely completion of construction project. Findings revealed that the most important predictor having positive influenced on timely completion of construction project was time management practices. Also, a unit increase in the practices influencing time management will lead to 31% moderate increase in timely completion of construction projects i.e. having a **β (Beta)** of 0.310 at a Sig. level of 0.024, and t = 2.321 and a unit increase in principles influencing time management will lead to a 13.5% increase in timely completion of construction projects i.e. having a **β (Beta)** of 0.135 though not significant at 0.05 level of significance. However, timely completion of construction project had a negative relationship with the processes influencing time management adherence i.e.

having **β (Beta)** of -0.071. As such, it neither predict nor has any significant effect at 0.05 levels.

Table 28: Regression Coefficient Analysis and Test Effects of the Study

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval For B		Correlations		
		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound	Zero-Order	Partial	Part
1	(constant)	4.210	.706		5.964	.000	2.798	5.622			
	Principles	.228	.153	.189	1.490	.141	-.078	.535	.189	.189	.189
2	(constant)	4.219	.773		5.457	.000	2.672	5.766			
	Principles	.235	.272	.194	.863	.391	-.309	.779	.189	.112	.110
	Processes	-.009	.289	-.007	-.029	.977	-.587	.570	.153	-.004	-.004
3	(constant)	2.629	1.012		2.597	.012	.603	4.656			
	Principles	.163	.264	.135	.615	.541	-.366	.691	.189	.081	.076
	Processes	-.091	.281	-.071	-.322	.748	-.653	.472	.153	-.042	-.040
	Practices	.463	.199	.310	2.321	.024	.064	.862	.333	.292	.286

a. Dependent Variable: Construction project delivery (Timely completion)

$Y = \beta 0 + B_1X_1 + B_2X_2 + B_3X_3 + \mathcal{E}$,
$Y = 2.629 + \mathbf{X}_1.163 + \mathbf{X_2}.-.091 + \mathbf{X_3}.463 + .1.012$
Source: Researchers' field survey (2019)

CHAPTER FIVE

5.0 DISCUSSIONS

5.1 Time Management Factors in Construction Project Delivery

The first objective was to identify time management factors in construction project, basically this objectives was achieved through the use of both primary and secondary data by extensive review of literature and content validity during pilot survey to validate the identified factors by experts. As such, after extensive review the factors of time management were grouped in to three namely: influencing principles, influencing processes and influencing practices. Construction project's time management variables were identified in literatures but not many were found in literatures applicable for Nigeria, perhaps some of these factors identified in other parts of the world could be applicable or differ from the Nigeria perspective as the case may be. The identified factors form the basis for the other objectives of the study. After the extensive review, a total of thirty-one (31) time management factors were identified and all remarkably accepted by the respondents as in Table 14. As such, 10 factors were identified for principles, 7 factors for processes and 14 factors were identified as Practices influencing time management, and the factors were presented alongside their various sources as in section 2.4 in Table 2, 3 and 4 respectively.

5.2 Levels of Adherence with the Principles and Processes of Time Management

The second objective was to examine the levels of adherence with the principles and processes of time management in construction project delivery.

5.2.1 Principles of time management influencing construction project delivery

Data analysis and questionnaire responses from the respondents revealed that 81.15% of the respondents are adhering or willing to adhere with the principles as against 18.85% who were unwilling to adhere with the principles of time management as depicted in Table 15.

However, effective communication & teamwork; effective planning; effective monitoring, controlling and evaluation of project work; identification of purpose (setting goals) and effective involvement of stakeholders were the most important principles influencing time management adherence having a cumulative mean scores of 29.82 equivalent to 54.23% overall score.

Effective communication and teamwork was ranked first, communication and teamwork is a crucial factor to the successful delivery of any project, especially timely completion. Researchers such as Othman *et al.* (2012), UNDP (2009) reported the importance of communication and teamwork in project delivery success in the various studies. According to Othman *et al.* (2012) the key to success in the construction of a sustainable development project was teamwork, with an in-built mechanism for communication from everyone in the construction site. UNDP (2009) further corroborate that, good communication improves clarity on expectations, roles and responsibilities, as well as information on progress and performance and this clarity helps to ensure optimum use of resources. Failure to work together in unison will make delay and other issues relating to poor delivery of project inevitable. The result was in agreement with the findings made by Lohiya (2010), Bahadori *et al.* (2015) in their studies respectively.

Monitoring, evaluation and control of project was ranked as the second most important principles influencing time management adherence. It is relevant to identify the concept of monitoring, evaluation and control to focus the elaboration per se to ensure adherence to time management in construction project delivery. Some researchers echoed the importance of monitoring and controlling project operations in their studies such as Passenheim (2009) also corroborate the findings of this study by asserting that monitoring relating to a project is to identify drawbacks and intervene for corrective action; Evaluation can relate to the general framework, structure, process as well as the result (product). Evaluation in terms of project management is then its estimate with reference to required

value and control is an important managerial function. He further states that, it helps to check the errors and to take corrective action.

Effective planning was also ranked as the second most important principle influencing time management adherence. As such, planning is vitally important towards achieving timely completion of any project and planning is every parties business per se. The result of this study agrees with Amade *et al.* (2015) in their studies they corroborate the findings of this study by concluding that Adequate Planning account for 29% variation in causing the success of construction projects. Also, Ayodeji *et al.* (2017) in their studies also reported that, adequate planning and monitoring project were ranked as the most important factors influencing project performance. The importance of effective planning is a crucial time management principle the result of the study also concurs with the findings of Memon *et al.* (2012). Also, Murithi *et al.* (2017) in their studies of factors influencing timely completion of project in Kenya, concludes that more than 80% of the respondents were in agreement with high ratings that project planning impacts positively on timely project completion of projects on schedule.

Identification of purpose or setting goals was ranked as the fourth most important principles in terms of level of time management adherence in this study. Setting of goals is a crucial time management principles as without a stated target of what to be achieve or position to be arrived at the end there will be virtually nothing to be deliver, The findings of this study on the importance of identifying purpose concurred and agrees with Mgeleka (2015) in his study of the Impact of Time Management on Work Performance in Local Government Authorities in Tanzania, argued that, setting targets is the techniques that not only helps one to manage his/her time, but also achieve the goals of the organization whereby, Odumeru (2013) added that, goal setting gives focus to where organization will channel their time, energy and resources, and it helps to keep them on track.

Effective involvement of project stakeholders was ranked as the fifth most important principles the respondents are willing to adhere with. As such, the importance of project stakeholders cannot be over state in any project. The importance of effectively engaging project stakeholders has been stressed by Amade *et al.* (2015) their study findings by reporting that the more passionate the stakeholders are about the project, the more likely they are in the removal of obstacles, and the more responsive they will be in dealing with problems as they arise.

The implication of these results is that adherence with the principles of time management especially effective communication and teamwork, effective planning, monitoring and evaluation, and engagement of stakeholders with a combine mean scores of 54.23% in principles will influence timely delivery of construction project. To improve success in any project, priorities need to be given to four main areas: Planning, communication, stakeholders' involvement, and monitoring and evaluation (UNDP, 2009). however, the other principles influencing time management adherence such as: ensuring accountability, integrity and responsibilities; effective daily/weekly scheduling of activities; effective delegation of activities and responsibilities; effective prioritization of activities and effective minimization and managing time wasters very well equally important in influencing time adherence, this is so because there mean scores is relatively good as well. Also, they could be said to be part and parcel of the planning, goal setting, teamwork and communication, as well as monitoring, control and evaluation stages of the principles of time management adherence.

The study further discovered that, there exists a significant relationship among the three categories of respondents i.e. client, consultants and contractors on their level of adherence and or willingness to adhere with the principles influencing timely completion of project.

5.2.2 Processes of time management influencing construction project delivery

Data analysis and questionnaire responses from the respondents revealed that 84.87% of the respondents are adhering or willing to adhere with the processes as against 15.13% who were unwilling to adhere with the processes influencing time management as depicted in Table 18. However, monitoring and controlling schedule of the project; estimating resource requirement for activities and developing schedule for the project were revealed to be the most important adhered processes influencing time management having a cumulative mean score of 12.96 equivalents to 46.29% overall score respectively.

In this study monitoring and controlling schedule of a project was ranked as the first most important processes in terms of time management adherence. The essential of monitoring and controlling project schedule has been echoed by PMI (2013) reporting that control schedule is the process of monitoring the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan, and the key benefit of this process is that it provides the means to recognize deviation from the plan and take corrective and preventive actions and thus minimize risk. Passenheim (2009) further assert its importance by reporting that, the function of monitoring is to intervene for corrective action in observed operations and processes if these do not develop as planned. Also, Murithi *et al.* (2017) in their studies of time management in Kenya, also echoed the importance of effective monitoring of project.

Estimating resource requirement for activities was ranked as the second most important processes of time management adherence in this study. The importance of determining the quality and quantity of various resources required to complete project on schedule has been echoed by PMI (2013) by reporting that, Estimate Activity Resources is the process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity. They added that the key benefit of this process is that it identifies the type, quantity, and characteristics of resources required to complete the

activity which allows more accurate cost and duration estimates. Hussain (2014), Mgeleka (2015) also stressed the importance of effective resource requirement in their various studies respectively.

Develop Schedule for the project was ranked as the third most important processes in terms of time management adherence. PMI (2013) states that the key benefit of this process is that by entering schedule activities, durations, resources, resource availabilities, and logical relationships into the scheduling tool, it generates a schedule model with planned dates for completing project activities. The importance of developing schedule was also corroborated by Passenheim (2009) on his part assert that, the schedule development is the instruction regarding the start and finish dates for a project activity. If the start and the finish dates are not realizable, the project will probably not be finished on time. He further add that time schedule development process must be often repeated before the project time schedule will be finished. The findings on the importance of developing schedule was in consonance with Sunke (2009) in his studies, assert that project schedule is not just a valuable instrument in communication and coordination of processes. It also serves both the planning of project activities and a related resource assignment to each activity considering some measure of performance as well as the planning of external activities. Hence, a schedule could be understood as a source of information for advanced booking of key staff or equipment which especially refers to a multi project environment.

The implication of these results is that adherence with the processes of time management especially monitoring and controlling the project schedule, developing schedule of the project and estimating resource requirement for the project with a combine mean scores of 46.29% in processes will influence timely delivery of project. Sunke (2009) states that, the result of project planning is a project schedule i.e. a definition of a set of starting and finishing times of project activities. He further state that project planning consists of project structuring with the tasks of project scheduling and resource allocation. Whereas the aim of project

scheduling is to determine start and finishing dates of project activities, the objective of resource allocation is to ensure the sufficient and timely supply of resources for project execution.

The study further discovered that there exists a significant relationship among the three categories of respondents i.e. client, consultants and contractors on their level of adherence and or willingness to adhere with the processes influencing timely completion of project.

5.3 Practices Influencing Time Management in Construction Project Delivery

The third objective was to assess practices influencing time management in construction project delivery. The respondents have identified 14 practices as depicted in Table 15. Data analysis and questionnaire responses from the respondents revealed that 90.69% of the respondents were in agreement while 9.31% that disagreed with the practice of time management as capable of influencing construction project as depicted in Table 21. Though, in this study the practices were grouped in to three i.e. economic, management and motivational policy consideration, the study findings revealed that availability of materials; effective supervision and management of staff were the most important factors in economic policy by virtue of their highest mean. Employment of skillful workforce, periodic monitoring and updating project progress were the most important management policies while Effective reward system and providing opportunity for extending skills were the most important motivational policies in group categories respectively as shown in Table 22.

However, general findings from the study further revealed that: Employment of skillful and competent workforce; ensuring availability of materials; conducting periodic monitoring, controlling and updating the progress of work done; ensuring availability of effective supervision and management of staff and ensuring commitment and providing good

leadership direction, were the most important practices influencing time management having a cumulative mean score of 42.34 equivalent to 40.32% overall score respectively.

The contribution of engaging skillful and competent workers towards effective and efficient project delivery is an indispensable factor, and it was ranked first by the study respondents in Table 23. This assertion was validated by several researchers such as: Bilau, Ajagbe, Kigbu and Sholanke (2015) in their studies opined that where qualified skilled craftsmen are involved, it tends to eliminate the concern of poor quality, low productivity, late project completion which often result to conflicts, cost and time overruns. Bustani (2000) on his part further corroborate the findings of this study by stating that the quality and availability of skilled workforce is considered an important factor in the effectiveness of the construction sector. Ogundipe *et al.* (2018) on their part believed that construction projects could experience low quality of finished job, project elongation, disputes, delay payment and poor project delivery due to shortage of skilled workers. By engaging the right workers with the necessary skills, competencies and experiences during construction project will not only improve productivity, safety, quality, reduced wastage but will ensure adherence to timely delivery of project on schedule. The findings of this study on the importance of using skillful and competent workers in order to achieve timely completion of project was further corroborated by the findings of Othman *et al.* (2012), Memon *et al.* (2012), Darren *et al.* (2012), Inuwa (2014) and Acharya *et al.* (2014) in their studies respectively.

The importance of ensuring the availability of the right quantity and quality of construction material at the right time when needed cannot be over stated as it will among others reduce idleness, poor workmanship and unnecessary delays towards timely delivery of project. Availability of materials was ranked second by the respondents in Table 23. The essential of ensuring availability of construction materials during construction has been validated by several researchers in their studies such as: Acharya *et al.* (2014) in their studies of delay factors in Nepal have concluded that unavailability of construction materials, lack of

skilled workers, among others are the main causes of cost and time overrun. Baldwin and Bordoli (2014) in their studies state that 40% of the time lost on the site can be attributed to bad management, lack of materials when needed, poor identification of materials and inadequate storage. In view of the afore mentioned assertion by researchers, by ensuring availability of materials and its management is a good economic practice that will indeed influence adherence to timely delivery of project. The findings of this study on the importance of the availability of materials was in agreement with the findings of Enshassi *et al.* (2009), Patel and Vyas (2011), Ugwu and Attah (2016), Solanke and Fapahunda (2016), and Sarowar, Surdkar and Chaudhari (2018).

Monitoring, controlling and updating the progress of work done on periodic bases is a managerial task whose importance cannot be underscore in any attempt to achieve effective and efficient project delivery, and it was ranked third by the respondents in Table 23. Adebayo, Eniowo and Ogunjobi (2018) project monitoring and control process is done to make sure everything goes according to plan. They further state that, Monitoring and control is an essential process in construction project management and delivery, and it is therefore imperative for construction companies to employ the usage of the most effective monitoring and control techniques available to meet project objectives. Also, Jack, Okeke, Okechukwu and Akinola (2016) states that, project monitoring and control identifies discrepancies, handles change management, and provides feedback to update and progressively elaborate the plan. Murithi *et al.* (2017) in their studies find out that 62.50% of their respondents strongly agreed that close monitoring of the project progress could improve the schedule performance of project. Findings made by this studies on the importance of monitoring and control in construction project delivery was further in agreement with the findings of Olawale and Sun (2010), Ugwu and Attah (2016), Memon *et al.* (2012), Amade *et al.* (2015) in their studies respectively.

By ensuring availability of effective supervision and management of staff in any project be it minor or major will have high effect towards adherence to successful delivery of the project objectives especially completion within schedule, and it was ranked fourth by the respondents an in Table 23. In the words of Andi (2004) since the construction workers are not totally skillful; there is the need to establish proper management technique in order to keep the workers productive. As such effective management of staff which could be achieved through availability of quality supervision is crucial to adherence to timely completion of construction project. Alwi, Keith and Sherif (2001) further echoed it importance by stating that the quality of site supervision has a major influence on the overall performance and efficiency of construction projects. the findings of this study on the importance of project supervision and management of staff was in agreement and concurred the findings made by Adjei (2009), Yeboah (2016), Ugwu and Attah (2016), Ogundipe *et al.* (2018).

By ensuring commitment and providing good leadership direction in construction project was ranked as the fifth most important practices by the study respondents as in Table (22). In the word of Odusami, Iyagba and Omirin (2003) leadership has been shown to be an important factor in successful project execution in a number of studies. As such, the importance of ensuring commitment by all stakeholders and providing good leadership will ensure adherence to achieving the project objectives and timely completion inclusive. According to Burke and Barron (2007) ideal project leaders are able to engage the team members at a personal level and encourage them, empower them and inspire them to participate in the project. They further opine that, People will perform better if they are inspired, motivated, directed and supported by good leadership. Toor and Ofori (2008) on their part echoed that authentic project leaders are not only good managers of projects, but they are also leaders of people and visionaries of the future by demonstrating commitment, devotion and dedication they become the role models. In the words of Archer *et al.* (2010) leadership is an important skill of a project manager. Also, Bhangale and Devalkar (2013) in

their studies concluded that, leadership is one of the most important and essential factors in good construction project management. They further conclude that, leadership is more than simply managing people or projects: it is the art of affecting other team members' behavior in order to achieve the goals and accomplish the tasks successfully.

The implication of these results was that adherence with practices of time management most especially: employment of skillful and competent workforce; ensuring availability of materials; conducting periodic monitoring, controlling and updating the progress of work done; ensuring availability of effective supervision and management of staff; and ensuring commitment and providing good leadership direction, accounting for 40.32% mean score will influence timely completion of project. Also, the remaining 9 practices in their order of importance i.e. setting timeline and project deadline; ensuring availability of plants, equipment and machineries; by ensuring team integration; providing opportunity for extending skills and experience through learning and challenging task; setting specific goals for people to achieve; ensuring adequate reward and recognition of workers contribution; ensuring job security for workers; ensuring a sense of belonging and identification with the project team and exercising power and punishment, whose mean scores were also relatively good are equally important practices of time management, again they account for the remaining 59.68% of the overall total mean scores. The findings of this study was in agreement and concurred with the findings of Ugwu and Attah (2016) in their studies of construction management practice in Nigeria have rate high in important index availability of equipment, setting timeline, identification with team member, setting specific goals for people to achieve, job security and providing opportunity for extending skills etc. as good practices influencing construction project management.

The study further discovered that there exists a significant relationship among the three categories of respondents i.e. client, consultants and contractors on their agreement on the practices influencing adherence to timely completion of project.

5.5 Effects of Time Management Factors on Construction Project Delivery

Objective no. 4 is to determine the effect of time management factors i.e. principles, processes and practices on construction project delivery. The respondents were asked to assess using a 6-point likert scale; the study revealed that 92% of the respondents were in agreement with high effects while only 8% are in agreement with low effects on timely completion of construction project as in Table 25.

The findings were further subjected to correlation analysis to determine the level of relationships and significance. As shown in Table 26, time management practices and timely completion of construction project was found to be moderately correlated ($r = 0.340$) and is highly significant ($P = 0.007<0.05$) and the findings is in agreement with the strength of relationship as in weak, moderate and strong as in (O'Brien & Scott, 2012). The findings revealed that, if adherence with time management practice is high then timely project completion will also be high because of their high positive relationship and therefore construction project with high adherence with economic, management and motivational policies consideration practices are completed on time. However, findings from the study further revealed that, adherence with time management principles and processes has a weak relationship ($r = 0.167$ and 0.107) with timely completion of construction project respectively, although not too significant.

Findings of this study were in agreement with similar studies by Murithi *et al.* (2017) in their studies of time management in Kenya, they discovered that, project monitoring and timely project completion was found to be highly correlated and significant ($r = 0.942$), ($P < 0.05$) and they also found out that, there is a high significance between project leadership and timely project completion of the public construction projects ($r = 0.895$) (highly correlated). Hence, since ensuring project monitoring, controlling and updating progress of work done; ensuring commitment and providing good leadership direction are among the high priority

Practices influencing timely completion of construction project. So, therefore, if Practices influencing time management index were high then construction project are delivered on time.

Data analysis was further carry out using a Hierarchical Multiple Regression between the dependent and independent variables. Findings of this study as shown in table 27 revealed that influencing principles, processes and practices explains 8.2% of timely completion of construction project which is significant at p-Value (0.024). Further findings revealed that the most important predictor influencing timely completion was adherence with time management Practices, accounting for 31% moderately increases in timely completion of construction projects as shown in Table 28. Also, Principles and processes influencing adherence to time management will lead to a 13.5% and 7.1% fair increase effects in timely completion of construction projects, though not too significant. However, the findings show that only the Practices influencing time management was statistically significant with ($P = 0.024 < 0.05$).

The findings of this study were in agreement with similar findings by Adeyinka (2012), Amade *et al.* (2015), Bahadori *et al.* (2015), Manaf and Razali (2017), and Murithi *et al.* (2017).

Adeyinka (2012) in his studies he find out that there exist a high positive relationship between organization high performance and time management. Bahadori *et al.* (2015) they find out that among their studied variables influencing time management, goal setting was the highest priority and the most affecting variable, and in this study setting goals was ranked as the fourth most important Principle influencing timely delivery of project. On their part Amade *et al.* (2015) in their studies they find out that effective communication management, adequate planning, and leadership skills of the project manager are among the critical success factors for public sector construction project delivery, however, regression analysis of their findings further revealed that adequate planning had a significant impact on the success of

construction projects. As such, in this study effective planning was ranked as the 2nd most important time management adherence principles influencing timely completion of project. Findings made by Manaf and Razali (2017) revealed that effective management of plants and equipment has high impact influence on the completion time of construction project and ensure successful completion of projects, and ensuring availability of plants and equipment is an important economic policy practice, the adherence of which will ensure timely completion of project.

The implication of the findings of this study is that adherence with good practices like employment of skillful and competent workforce; ensuring availability of materials; conducting periodic monitoring, controlling and updating the progress of work done; ensuring availability of effective supervision and management of staff; and ensuring commitment and providing good leadership direction will have moderate positive increase and predicts 31% effects on timely completion of construction project. Also, adherences with principles like effective communication and teamwork; effective planning; effective monitoring, controlling and evaluation of project work; identification of purpose (setting goals) will have a fair positive increase and predicts 13.5% effects on timely completion of construction project. However, there exist a negative weak caused effect -7.1% between the processes of time management and timely completion of construction project, the results may imply that construction projects may still be delivered behind schedule despite adhering with the processes of time management. As such, adherence with the Practices influencing time management will have a moderately positive caused effect on construction project delivery especially in the aspect of timely completion.

CHAPTER SIX

6.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Findings

In the light of the study objectives, research questions and general results, this study presents the following as its summary of findings:

The study revealed that in figure 2 more than 75% of the respondents are core players in the construction sectors. Though, Engineering and Quantity Surveying professionals have the highest participation in the survey with 22.58% each, followed by the Architects 19.35%, Builder's 14.52%. So, reliable information was used for the work as obtained from those directly involved in the management of building construction. However, the issue of time management is everybody's business, which is also managerial and behavioural in nature. As such, 12.90% of the respondents were Planners, Estate management, Accounting, Land Surveying, Business and Management, and were representing the clients, contractors' and consultants in the project.

The study reveals that in Table 11, 38.7% of the respondents were involved in the monitoring and supervision of the project; this is mostly applied to professionals' representing the client. 21% are involved in the project execution, of which most are representing the contractors'. 13% are involved in the management and planning of the project. However, 27.4% of the respondents' are engaged in either the combination of planning, monitoring/supervision, execution or management aspect of the project.

The study revealed that in Figure 4 the respondent were asked to identify there category of working organization; clients' have the highest with 39% this may be due to the fact that clients are most affected by the incidences of time-overrun which in turn affect their

initial budget. 32% have identified as working for the contractors' while 29% identified with the consultants.

Ninety-four percent (94%) of the respondents were in agreement with the notion that the issue of time management during construction project delivery is under looked by stakeholder's in favour of cost management. Also, 98% of the respondents have experienced extension. As such, the findings revealed that time-overrun is still a major issue in construction project delivery. More than 70% of the respondents have experienced extension of time ranging from one month to eighteen months durations.

The study findings revealed that thirty-one time management factors in construction project delivery were identified and grouped in to three (3) categories: 10-Influencing Principles; 7- Influencing Processes and 14- Influencing Practices respectively as in Tables 2, 3, 4 and 14. Also, more than 80% of the respondents were in agreement and accepted the factors.

The study revealed that 81.15% of the respondents were adhering or willing to adhere with the principles influencing time management as in Table 15. While 84.87'% of the respondents are adhering or willing to adhere with the processes influencing time management as in Table 18.

Ten (10) principles were identified as influencing time management as in Tables 14, 15 and 16. However, the most important in order of adherence are: effective communication and teamwork; effective planning; effective monitoring, controlling and evaluation of project work; identification of purpose (setting goals) and effective involvement of stakeholders, having a cumulative mean score of 29.82 equivalent to 54.23% overall score.

Seven (7) processes were identified as influencing time management as in Tables 14, 18 and19. However, the most important in order of adherence are: monitoring and controlling

schedule of the project; estimating resource requirement for activities and developing schedule for the project, having a cumulative mean score of 12.96 equivalents to 46.29% overall score.

Fourteen (14) practices were identified as influencing timely completion of construction projects and were grouped in to three (3): economic, managerial and motivational policy considerations as in Tables 22 and 23. However, the most important practices in order of importance are: Employment of skillful and competent workforce; ensuring availability of materials; conducting periodic monitoring, controlling and updating the progress of work done; ensuring availability of effective supervision and management of staff and ensuring commitment and providing good leadership direction, having a cumulative mean score of 42.34 equivalent to 40.32% overall score.

The study findings revealed that 92% of the respondents as in Table 25 were in agreement with high positive effects that adherence with the time management factors "principles, processes and practices" will ensure timely completion of construction project.

The study findings revealed that practices influencing time management and timely completion of construction project was found to be moderately correlated ($r = 0.340$) and there is significant relationship ($P = 0.007<0.05$). Though, there is fair correlation between adherence with the principles and processes of time management and construction project delivery, though not significant.

Findings revealed that the most important predictor influencing timely completion of construction project is time management practices, predicting a moderate caused effect of 31% increases in timely completion of construction projects as shown in Table (28). Principles influencing time management predicts a fair caused effect of 13.5% increase in timely completion of construction projects. However, only the Practices influencing time management was statistically significant with ($P = 0.024 < 0.05$).

2.2 Conclusion

Conclusions of this research were in line with the findings to the aim and objectives that this research was set out to achieve which were satisfactorily achieved. The conclusions from this work are as follows:

Thirty-one time management factors in construction project were identified and grouped in to: influencing principles, processes and influencing practices all geared towards timely completion of construction projects.

More than 70% of the respondents are adhering or are willing to adhere with the principles and processes influencing timely completion of construction projects.

Ten principles time management were identified and remarkably accepted. The results shows that the most important factors in terms of adherence are: effective communication and teamwork; effective planning; effective monitoring, controlling and evaluation of project work; identification of purpose (setting goals) and effective involvement of stakeholders. While the least ranked principles of time management in terms of level of adherence are: delegation of responsibilities, prioritization of activities, and minimizing and managing time wasters.

Seven processes of time management construction project were identified and remarkably accepted. The results revealed that the most important factors in terms of adherence are: monitoring and controlling schedule of the project; estimating resource requirement for activities and developing schedule for the project. While the least ranked are: sequencing of activities and defining activities to be undertaken.

All the fourteen practices of time management in construction project were identified to be important and were categorized in to: economic, management and motivational policy factors. The result revealed that the most important practices are: employment of skillful and

competent workforce; ensuring availability of materials; conducting periodic monitoring, controlling and updating the progress of work done; ensuring availability of effective supervision and management of staff and ensuring commitment and providing good leadership direction. However, the least ranked are: exercising power and punishment of defaulting workers; ensuring a sense of belongings and identifying with the project team members; ensuring job security for workers, and ensuring adequate reward and recognition of workers contribution.

Time management factors i.e. principles, processes and practices will have positive effects of more than 90% towards timely completion of construction project.

There is a moderate significant correlational relationship of 0.340 between adherence with the practices influencing time management and completion of construction projects on schedule. Practices influencing time management will have a 31% caused effects increase in completion of construction project on schedule. Time management principles though not too significant will however have 13.5% fair positive caused effects towards timely completion of construction project on schedule. While the processes of time management was the least predictor influencing timely completion of construction projects.

The implication of this study was that time management factors most especially the practices were the major predictors influencing timely completion of construction project on scheduled provided there is immunity from other external factors which might posed as hindrance and it has high positive caused effects than the principles and processes of time management. As such, time management factors have 45% positive caused effect on construction project delivery most especially completion of project within schedule.

6.3 Recommendations

This study has closed the gap which hitherto necessitated carrying out this research. As such, based on the study findings and conclusions. The following recommendations were proffered:

i. Time management is an indispensable phenomenon; as such every stakeholder's input either working for the clients, contractors and or consultants is crucial towards timely delivery of project i.e. there is the need for more synergy among the various parties.

ii. Stakeholders in the construction project should ensure adherence with principles such as effective communication and teamwork as well as effective planning.

iii. The clients should carry out unscheduled inspection through effective monitoring, controlling and evaluation of work done and ensure that the contractors are adhering with the goals set out for the project, especially on timely completion.

iv. Stakeholders especially the contractor should ensure adherence with time management adherence practices such as employment of skillful, experienced and competent workforce during construction project operations.

v. The clients and contractors should ensure availability of construction materials at all times as a good practice influencing time management.

vi. There is need to employ and abide by the standard form of contract, as such every stakeholder should have a good understanding of their roles in the project.

vii. There is need to use and strictly adhere to any principles, processes and practices that will positively influence timely completion of construction project.

viii. The government and other relevant stakeholders like professional bodies among others should provide extensive seminars and workshop on the importance of time management and its effects on construction project delivery.

ix. Project management course should be introduced in the curricula of technical colleges, polytechnics, colleges of education and universities and other institutes of the government across Nigeria, most especially in the aspect of time and its management.

x. The findings of this study should serve as a basis for further research to improve on construction project delivery performance, most especially in the aspect of cost, quality, risks and stakeholders satisfaction among others.

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APPENDICES

APPENDIX I: QUETIONNAIRE COVER LETTER

ABUBAKAR TAFAWA BALEWA UNIVERSITY BAUCHI
Faculty of Environmental Technology
Department of Quantity Surveying

Dear Respondent, January, 2019

REQUEST FOR COMPLETION OF QUESTIONNAIRE

I am a master degree student of Project Management of the above named university currently undertaken a research work title: **Time Management Factors in Construction Project Delivery in Gombe State, Nigeria**. The attached Questionnaire is intended to collect data on the ***"Principles, Processes and Practices influencing timely completion of construction project"*** in order to achieve the following set objectives:

- ✓ *To identify time management factors in construction project delivery*
- ✓ *To examine the level of adherence with the principles and processes of time management in construction project delivery*
- ✓ *To assess practices influencing time management in construction project delivery*
- ✓ *To determine the effect of time management factors in construction project delivery*

Your responses and the results obtained will be used strictly for the purpose of this study with utmost confidentiality.

Thanks in anticipation for your cooperation.

Yours sincerely

Suleiman SHEHU
PGS/15-16/4/M/4668
(M-Tech in Project Management)
Phone No: 07066251215
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Dr. Abdullahi Nafiu ZADAWA
(Main Supervisor)

APPENDIX II: SAMPLE OF THE STUDYQUETIONNAIRE

SECTION A: Respondent Particulars

Please tick appropriate option [√]

1. **Area of Expertise/Specialization**: Architecture[ ] Engineering[ ] Quantity Surveying[ ] Building [ ] Project Management [ ] Planning/Estate Management [ ] Accounting[ ] Land Surveying[ ] Business & Management[ ]
   … Multiple options are allowed indicating most priority by ticking 1, 2…
2. **Highest Qualification:** ND/NCE[ ] Degree/HND[ ] Master/PGD[ ] PhD[ ]
   Others ***……Please Specify***
3. **Years of Working Experience**: 0-5years[ ] 6-10 years[ ] 11-15 years[ ] more than 15years[ ]
4. **Nature of Project Operation Involve:** Planning [ ] Execution [ ] Monitoring/Supervision [ ] Management [ ] ***… Multiple options are allowed indicating most priority by ticking 1, 2…***
5. **Category of Working Organization:** Client [ ] Consultants [ ] Contractors [ ]

SECTION B:

6. **Please,** what is your professional opinion on this statement "Stakeholders pays more attention and resources to managing cost as compare to time during construction project delivery"?

   Completely Disagree [1] Mostly Disagree [2] Slightly Disagree [3]
   Slightly Agree [4] Mostly Agree [5] Completely Agree [6]

7. **Please**, have you ever experience extension in construction project delivery time in any project you are involved? Yes [ ] No [ ] *If NO,* ***Please go to Question 9, 10 & 11***

8. **Please if yes,** what is the likely Length of extension? 1-6 months [ ] 6-12months [ ] 12-18months [ ] Above 18 months [ ]

SECTION C: Main Research Questions

9. **Please,** Rate by identifying the followings time management factors in construction project delivery using a 6-point likert scale:

   Completely Disagree [1] Mostly Disagree [2] Slightly Disagree [3]
   Slightly Agree [4] Mostly Agree [5] Completely Agree [6]

Time management factors	Levels of Agreement					
	Disagreement			Agreement		
Principles						
Effective Planning	[1]	[2]	[3]	[4]	[5]	[6]
Identification of purpose (setting goals)	[1]	[2]	[3]	[4]	[5]	[6]
Effective Prioritization of	[1]	[2]	[3]	[4]	[5]	[6]
Effective Delegation of responsibilities and activities	[1]	[2]	[3]	[4]	[5]	[6]
Effective Daily/weekly scheduling of activities	[1]	[2]	[3]	[4]	[5]	[6]
Ensure Accountability, integrity and responsibility	[1]	[2]	[3]	[4]	[5]	[6]
Effective Minimization and Managing time wasters	[1]	[2]	[3]	[4]	[5]	[6]
Effective Monitoring, controlling and Evaluation of project work	[1]	[2]	[3]	[4]	[5]	[6]
Effective Communication and teamwork	[1]	[2]	[3]	[4]	[5]	[6]
Effective involvement of Stakeholders	[1]	[2]	[3]	[4]	[5]	[6]
Processes						
Plan schedule management	[1]	[2]	[3]	[4]	[5]	[6]
Define activities to be undertaken	[1]	[2]	[3]	[4]	[5]	[6]
Sequencing of activities	[1]	[2]	[3]	[4]	[5]	[6]
Estimating resource requirement for activities	[1]	[2]	[3]	[4]	[5]	[6]
Estimating duration of activities	[1]	[2]	[3]	[4]	[5]	[6]
Developing schedule for the project	[1]	[2]	[3]	[4]	[5]	[6]
Monitoring and controlling schedule of the project	[1]	[2]	[3]	[4]	[5]	[6]
Practices						
By ensuring availability of Plants, Equipment and Machineries	[1]	[2]	[3]	[4]	[5]	[6]
By ensuring availability of materials	[1]	[2]	[3]	[4]	[5]	[6]
By ensuring availability of effective supervision and management of staff	[1]	[2]	[3]	[4]	[5]	[6]
By ensuring commitment and providing good leadership direction	[1]	[2]	[3]	[4]	[5]	[6]
By Setting timeline and project dateline (starting & finishing date of activities)	[1]	[2]	[3]	[4]	[5]	[6]
By Setting specific goals for people to achieve	[1]	[2]	[3]	[4]	[5]	[6]
By conducting periodic monitoring, controlling and updating the progress of work done	[1]	[2]	[3]	[4]	[5]	[6]
By ensuring team integration (collaborative involvement of all team members)	[1]	[2]	[3]	[4]	[5]	[6]

By employment of skillful and competent workforce	[1]	[2]	[3]	[4]	[5]	[6]
By ensuring job security for workers	[1]	[2]	[3]	[4]	[5]	[6]
By ensuring a sense of belonging and identification with the project team	[1]	[2]	[3]	[4]	[5]	[6]
By Provide opportunity for extending skills & experience through continuous learning	[1]	[2]	[3]	[4]	[5]	[6]
By ensuring adequate recognition of workers contribution	[1]	[2]	[3]	[4]	[5]	[6]
By exercising power (punishment of defaulting workers/team)	[1]	[2]	[3]	[4]	[5]	[6]

10 & 11. Please, Rate by ticking [√] the appropriate level of Adherence or Willingness to adhere with the following Principles & Processes influencing Time management in construction project delivery using Scale 1-6.

LEVEL OF ADHERENCE					
Never Adhere	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently
[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**

10. Principles influencing Project Time Management	**Level of Adherence**					
	Non Adherence			**Adherence**		
1. Effective Planning	[1]	[2]	[3]	[4]	[5]	[6]
2. Identification of purpose (setting goals)	[1]	[2]	[3]	[4]	[5]	[6]
3. Effective Prioritization of activities (Arranging and starting activities in order of importance to the completion time)	[1]	[2]	[3]	[4]	[5]	[6]
4. Effective Delegation of responsibilities and activities	[1]	[2]	[3]	[4]	[5]	[6]
5. Effective Daily/weekly scheduling of activities	[1]	[2]	[3]	[4]	[5]	[6]
6. Ensure Accountability, integrity and responsibility	[1]	[2]	[3]	[4]	[5]	[6]
7. Effective Minimization and Managing time wasters (Phone calls, emails, social media chatting, unscheduled visitors etc.)	[1]	[2]	[3]	[4]	[5]	[6]
8. Effective Monitoring, controlling and Evaluation of project work	[1]	[2]	[3]	[4]	[5]	[6]
9. Effective Communication and teamwork	[1]	[2]	[3]	[4]	[5]	[6]
10. Effective involvement of Stakeholders	[1]	[2]	[3]	[4]	[5]	[6]

11. Processes influencing Project Time Management	Level of Adherence					
	Non Adherence			Adherence		
Plan schedule management (Establishing Policies, Procedures, documentation for planning, developing, managing, and controlling schedule etc.)	[1]	[2]	[3]	[4]	[5]	[6]
Define activities to be undertaken (Identifying & Documenting specific actions to be performed to produce the project etc.)	[1]	[2]	[3]	[4]	[5]	[6]
Sequencing of activities (Identifying and Documenting relationships among the Project Activities)	[1]	[2]	[3]	[4]	[5]	[6]
Estimating resource requirement for activities (Types and quantities of material, human resources, equipment to perform each activity etc.)	[1]	[2]	[3]	[4]	[5]	[6]
Estimating duration of activities (Estimating period required to complete a schedule activity with the estimated resources)	[1]	[2]	[3]	[4]	[5]	[6]
Developing schedule for the project (analyzing activity sequences, durations, resource requirements to determine the start-finish dates, mile-stone)	[1]	[2]	[3]	[4]	[5]	[6]
Monitoring and controlling schedule of the project (monitoring the status of the project to update the project schedule and manage any changes etc.)	[1]	[2]	[3]	[4]	[5]	[6]

12. Please, can the following Practices influence Time management in construction project delivery? Using Scale (1 -6) ranking, tick [√] the appropriate option

Level of Influence					
Completely Disagree	Mostly Disagree	Slightly Disagree	Slightly Agree	Mostly Agree	Completely Agree
[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**

Practices influencing Project Time Management	Level of Influence					
Economic Policy Consideration	**Disagree**			**Agree**		
1. By ensuring availability of Plants, Equipment and Machineries	[1]	[2]	[3]	[4]	[5]	[6]
2. By ensuring availability of materials	[1]	[2]	[3]	[4]	[5]	[6]
3. By ensuring availability of effective supervision and management of staff	[1]	[2]	[3]	[4]	[5]	[6]
Management Policy Consideration	**Disagree**			**Agree**		
4. By ensuring commitment and providing good leadership direction	[1]	[2]	[3]	[4]	[5]	[6]
5. By Setting timeline and project dateline (starting & finishing date of activities)	[1]	[2]	[3]	[4]	[5]	[6]
6. By Setting specific goals for people to achieve	[1]	[2]	[3]	[4]	[5]	[6]
7. By conducting periodic monitoring, controlling and updating the progress of work done	[1]	[2]	[3]	[4]	[5]	[6]
8. By ensuring team integration (collaborative involvement of all team members)	[1]	[2]	[3]	[4]	[5]	[6]
9. By employment of skillful and competent workforce	[1]	[2]	[3]	[4]	[5]	[6]
Motivational Policy Consideration	**Disagree**			**Agree**		
10. By ensuring job security for workers	[1]	[2]	[3]	[4]	[5]	[6]
11. By ensuring a sense of belonging and identification with the project team	[1]	[2]	[3]	[4]	[5]	[6]
12. By Provide opportunity for extending skills & experience through continuous learning	[1]	[2]	[3]	[4]	[5]	[6]
13. By ensuring adequate recognition of workers contribution (Bonuses, award etc.)	[1]	[2]	[3]	[4]	[5]	[6]
14. By exercising power (punishment of defaulting workers/team)	[1]	[2]	[3]	[4]	[5]	[6]

13. Please, rate using a 6-point scale**;** construction project delivery with emphasis on timely completion Nigeria, will be affected by Time management factors?

Completely Low [1] Mostly Low [2] Slightly Low [3]
Slightly High [4] Mostly High [5] Completely High [6]

THANK YOU FOR YOUR RESPONSE!